

The Dental Digest.

Vol. XIII.

CHICAGO, NOVEMBER, 1907.

No. 11.

Original Contributions.

DRUGS; THEIR USES, ABUSES AND MEASUREMENTS.

BY DAVID STERN, B.S., D.D.S., CINCINNATI, O. READ BEFORE THE CINCINNATI ODONTOLOGICAL SOCIETY, OCTOBER 25, 1907.

With the publication last fall of the last or "eighth decennial revision" of the Pharmacopeia of the United States, which became official in September, 1905, the subject of medicaments suggested itself to me as one for a paper to be read before this society at the May, 1907, meeting. It was, however, necessary to postpone the reading of this paper until this meeting, and in the meanwhile I have noticed that a paper on "Pharmacopeial Revision" was read by Dr. Edward Hoffmeister (*Cosmos*, June, 1907) before the Maryland State Dental Association at Washington, D. C., on June 7, 1906, and also one on the same subject by Dr. G. Benton Squires (*Cosmos*, August, 1907), Somerville, Mass., before the Northeastern Dental Association at Boston on October 6, 1906. Dr. Hoffmeister's paper appeared in print in June of this year (a year after its reading), and Dr. Squires' in August of this year. They cover much of what I intended to say, but the subject is an important one and has not been discussed in this society, so we will consider the subject of drugs in regard to their uses, abuses and measurements; improvements in regard to purity, both on account of legal measures adopted by the federal government and the advancement in the scientific department of dentistry, for in treatments of diseases of the oral cavity dentistry is an applied science.

We have noticed that our eminent physicians prescribe the most simple remedies that conditions allow, and there appears to be no reason why the same principle should not apply to

dental medicine. Should we review the list of drugs which we use, we would discover that we frequently use a number, any one of which would do the same work. As Dr. Kirk says: "Why first destroy the germ and its waste products with a cannon and then destroy them some more with a Gatling gun?" (*Cosmos*, November, 1905.) One reason for this mistake is that we are not sufficiently familiar with the composition of our drugs and, therefore, are not able to judge the action and the double decomposition which takes place: that is, the decomposition of the tissue and also of the drugs.

Every dental school has a compulsory course in chemistry and *materia medica*, but, to many, the former especially is considered superfluous, or, perhaps, too profound, for immediately upon completing the prescribed course text books are disposed of and the subject is dismissed with a mere elementary knowledge of a very important branch, both in the operative and mechanical departments of dentistry. They forget that, having been taught the fundamental principles, the most knowledge is acquired while in practice.

We can divide drugs into two classes, as follows:

- (1) Those of definite or well-known composition.
- (2) Preparations of a proprietary nature, the composition of which is always problematical.

Fortunately a federal law (Pure Food and Drug Act, June 3, 1906) has been passed which in a measure controls this second class and compels the manufacturer to state, on the label, what the ingredients are, if any are of an objectionable nature, otherwise they must bear the guaranty of the commission that they are free from harmful ingredients. Like all innovations in the way of reform, methods will be found to circumvent these stringent measures, but in the course of time good results will follow. Then we will at least know what, if not how much, we are using, instead of depending upon some Greek or Latin name or the name of some deceased investigator of science. Antidolorin, Somnoform, Antikamnia, Phenalgin, Antifebrin, Sozodont, Listerine, Pasteurine, etc., are but vague names, indicating perhaps the purposes for which these preparations are to be used, but telling nothing of what we are handling. Mothers frequently

desire to quiet children while teething, but do not dare to use paregoric because it contains opium. They will, therefore, use some proprietary article in the form of a soothing syrup to put the little ones at ease, not knowing that it contains the narcotic which they desire to avoid. We will find adults using toothache chewing gum and then going to the dentist for relief from an inflamed and blistered mouth, brought on by the phenol or creosote in this gum.

We are aware of many other evils which arise from this second class of drugs, many of which give so-called relief on account of containing a large percentage of narcotics and stimulants that they are not supposed to contain. Under this Drug Act many have been compelled to change their formulas entirely and to depend upon their prior advertising for their sales. Others, who depended upon the alcoholic effect of their remedies, must now, on the labels, give the percentage of alcohol contained, and where the percentage goes beyond the legal limit they must pay the federal spirit tax, which is no small item.

After this law was enacted several months were allowed retailers to stamp their stocks on hand, so as to enable them, later on, to dispose of articles purchased prior to the enforcement of the new regulations. Not a few dealers took advantage of this and put in a large supply of such preparations, as they would be required to make the contents known if purchased after a specified date. Therefore, on general principles, we ought to ignore proprietary articles so far as possible and confine ourselves to those of the first class—articles of well-known and definite composition.

In his lecture to college students, Dr. Harlan says: "All the medicines that I use in a man's mouth are put up then and there—no patented preparations for me. If I want to be sure that a man is going to use a medicine prescribed by me, I have boy put it up in a bottle, seal it and wrap it and give it to him, instead of sending the patient to a drug store to get the prescription filled." (*Harlan's Lectures*, page 4.) By that I presume that he has the best drugs procurable in his cabinet and does not wish to take chances with every druggist.

I will again quote the same authority: "A gentleman wishes to

know what I think of Oxpara as a permanent root filling. I do not think anything about it at all, because I do not know what Oxpara is and do not use anything in the roots of teeth unless I know its composition." (*Ibid.*)

This is surely an example worth emulating, especially as we have so many simple and inexpensive remedies which experience has taught us to handle. To assist us in this direction, the new Pharmacopeia uses but few synonyms in the main text, thus avoiding much confusion in prescribing and dispensing. For instance, the term Phenol is adopted to cover what were called Carbolic Acid, Phenic Acid, Phenyl Alcohol and Phenol. Carbolic Acid and Phenic were always absolute misleading misnomers, for their structural formulas show that Phenol is strictly an alcohol, consisting of a positive hydrocarbon radical and the negative hydroxyl.

"Arsenous Acid" and "Chromic Acid" have been changed to "Arsenic Trioxide" and "Chromium Trioxide." This is to conform with modern chemistry—that an anhydrid is not an acid so long as it is kept dry. Therefore, in an arsenical treatment for devitalization, the destructive acid only appears in the presence of moisture. (This is not intended as a chemical paper and these remarks on acids and oxids are merely to call attention to former mistakes in nomenclature.)

What is the advantage in having a variety of names for hydrogen peroxid, except for the manufacturers to mislead the consumers? For this preparation we now have on the market Pyrozone, Hydrogen Peroxid, Hydrogen Dioxid, Hydrozone, Dioxogen, Perhydrol, and perhaps others with whose names I am not familiar. A patient recently asked which I considered the better, Pyrozone or Dioxogen, and had to be informed that practically there is no difference between the two; just as I had to learn that Perhydrol is the latest hydrogen peroxid preparation placed on the market.

The manufacturers claim that these names are trademarks and a guaranty of being what they represent. It appears to me that a better and less misleading plan would be for all firms to use the term hydrogen peroxid and let the name of the manufacturer on the label be an endorsement of merit. When we pur-

chase chloroform (Squibb's) for anesthesia we are getting what the medical and dental professions consider the best. We know that nearly all of these peroxids are good, but under the Drug Act we are enabled to know their purity. For oral prophylaxis any of the commercial products will answer, but when it comes to the treatment of pathologic conditions, such as abscesses, purity is of importance and we want the real peroxid without admixtures. The bottle of the last peroxid that I purchased, and it is from a reliable firm, is labeled as follows: "Hydrogen Peroxid. Each fluid ounce contains 3-16 grains of Acetanilid. Guaranteed under the Food and Drug Act, June 30, 1906."

Acetanilid is used for preservation. H_2O_2 loses strength with age and deterioration is accelerated by exposure to heat and light. Thus we are informed that this is not chemically pure peroxid, which could scarcely be sold to the consumer at so low a figure, for I am paying only \$1.40 a gallon for the same, and it answers the purpose for which it is intended. It is a 3 per cent solution. The 30 per cent Perhydrol is guaranteed to be pure and is expensive, for this little package of 50 c. c. (about two ounces) costs \$1.80, but goes a good way, as it is ten times as strong as the ordinary peroxid. The only exception I take is that it is labeled Perhydrol instead of Hydrogen Peroxid 30 per cent (Merck).

Recently I received a sample of a mouth-wash labeled according to legal requirements. I will quote the formula of this article:

Alcohol 18 per cent.

Formalin $\frac{3}{4}$ min. per oz.

Acetate Amyl 1-3 min. per oz.

According to this, it takes a pint of alcohol, five pints of water, 36 drops of formalin and 12 drops of amy1 acetate to make $\frac{3}{4}$ gal. of the mouth-wash, at a cost of not over 40 cents, while it is sold in a fancy bottle at 3 oz. for 25 cents. Very dilute formalin with any convenient flavoring would make just as good a mouth-wash. We can write a simple prescription for a patient, instead of recommending such proprietary articles.

Let me mention just a few additions to the Pharmacopeia, one of which is compound acetanilid powder (contains 70 per cent of acetanilid, 10 per cent caffeine and 20 per cent sodium bicarbon-

ate). Ammonal, Antikamnia, Phenalgin, Salacetin, all contain acetanilid, which the trade names endeavor to keep secret. By prescribing this compound powder, you know just the amount of acetanilid you are giving.

Thymol Iodid (48 per cent iodin). Known by the trade names of Aristol, Annidalin, Thymotol, Cresol—a mixture of three isomeric cresols. Formerly the terms Cresol and Tricresol led to confusion.

There are other additions and changes which help us to use, as far as possible, drugs of the first class, those of definite and well-known composition, as we should. The best proof of this is that men recognized as of the greatest ability in our profession, especially in the line of *materia medica*, use remedies of great simplicity; men like Buckley, Black, Harlan, Rhein, Nyman, Kirk and others. They all give monopharmacy preference over polypharmacy. In modern medicine many drugs in a prescription indicate ignorance, for in such a mixture one hopes that some one of the ingredients may effect a cure. A mere chance, where failure is more liable to follow than success. Just consider the simple formulas suggested by Buckley in the treatment of putrescent pulps. (*Cosmos*, May, 1906.) In the course of treatment, eight prescriptions are given and no one has more than two ingredients; cresol and formalin, mercury bichlorid in hydrogen peroxid, potassium iodid in sarsaparilla syrup, quinin bisulphate, etc. And even the first (cresol and formalin) has been criticized, perhaps unjustly, as being a specimen of polypharmacy, on the ground that either ingredient would effect the desired result.

We know of the success in pulp extirpation which usually follows Dr. Callahan's simple sulphuric acid treatment, but this does not indicate that we must depend upon this treatment in every instance. For several years I have met with considerable success by simply filling a sensitive pulp chamber with menthol crystals, for menthol has antiseptic and anesthetic properties, putting cotton saturated with creosote over this and sealing in the same for a day. From experience and study we learn how drugs act and, after we have results, we should investigate for ourselves, for to use a remedy because an authority recommends it for a specific ailment is poor dentistry. Conditions and environment must con-

trol treatments, and these same authorities vary treatments according to existing conditions.

There is still one point, and an important one, to which not sufficient attention has been called, and that is that the metric system has been adopted in the new Pharmacopeia. This is a step in the right direction, and one that has long since been taken by nearly all foreign countries, England displaying less progress than the other European nations. England's monetary system is difficult to learn, while we can go into Germany, France, Austria or Italy and comprehend their system, which is like that of our own currency. Why should water boil at 212° in England and 100° in France? Freeze at 32° in this country and at zero in Germany? Why should a pound be of the same weight in a grocery and in a drug store, while the ounce has a different weight in the two places? Just because the apothecaries' weights have been used as standards since 1825 and it is not convenient to learn and teach the universal method. The size and weight of the grain is fixed in the mind, and because the gram is fifteen times as large and heavy it appears difficult to take it as a standard. The metric system, founded upon a decimal basis, is so simple that it can be learned from a few pages in a text book. As stated before, it makes the estimation of weights and measures as simple as the counting of American money, as compared with that of England. Weights and volumes are expressed in multiples and decimals of a universal system, of which the meter is the basis. Linear measure has the meter as the standard, and all weights and volumes can be calculated from the standard without much mental exertion. For example, on the label of one of the preparations I have mentioned this evening (peroxid), the statement that each fluid ounce contains 3-16 grains of acetanilid leaves but a vague impression of the proportion of the acetanilid to the other ingredients. In order to comprehend the percentage we must do considerable figuring.

An ounce has 480 grains.

480 grains contain 3-16 grains of acetanilid.

160 grains contain 1-16 grain of acetanilid.

2,560 grains contain 1 grain of acetanilid.

1-2,560 equals 0.04 per cent of acetanilid.

Thus we see how readily we would comprehend the quantity of acetanilid if the label read:

"This preparation contains 0.04 per cent of acetanilid." With the length of the meter (about 39 inches) well impressed upon the mind, weights and volumes can easily be understood and calculated, and it is of advantage to discard all other systems and adopt the one which is used in this revised Pharmacopeia of the United States.

Although we are more or less familiar with the metric system, perhaps some present do not apply it in their practices. I have therefore brought a few of the weights and measures with me, just to show the superiority of their use over those still used by a large majority of physicians and dentists in this country.

I have also a specimen of the Perhydrol, which some of the society may not have seen.

ZINC SULPHOCARBOLATE.

BY W. H. WHITSLAR, M.D., D.D.S., CLEVELAND, O.

The usefulness of zinc sulphocarbolate is becoming recognized in the treatment of all inflammatory conditions of the mucous membrane of the mouth and the deeper structures. Because of this efficiency it is especially useful in the treatment of pyorrhea alveolaris. To treat this disease (the name is really only a sign of the disease), it has become apparent that it is first necessary to surgically remove all deposits upon the roots of the teeth and trim away diseased bone. Sometimes the apices of the roots become resorbed, so that needle-like points are made, which are to be removed if discerned. The treatment ordinarily given not producing results causes one to conclude that the condition just mentioned is probably the cause of the delay in healing. A skiagraph will assist in the diagnosis. Removal of the apex of the root will relieve the condition, but unfortunately the delay in asking for the treatment of such teeth is too late in many cases, for the reason that concomitantly with the destruction of the root the alveolar process has disappeared. However, when sufficient anchorage is left for any tooth affected by pyorrhea it is a plain duty to keep the said tooth, providing it is desirable. It is difficult to

enumerate all conditions that we may meet in the treatment of pyorrhea in a short article, so a general statement will suffice to convey the purport of this writing.

As indicated above, the removal of all irritants is the *first* requisite, then stimulation to engender granulations, and finally to bring the tissues to their normal relations.

In the operation for the removal of irritants sufficient stimulation has often been provided. The question sometimes is how far to go, and whether there has not been too vigorous curement. It requires an unusual amount of skilful dexterity to remove deposits from the roots of teeth. The use of lactic acid in the removal of deposits is proper, when required, and it assists also in promoting granulations. There are many cases of pyorrhea which only need the surgical treatment for their cure. Nature does the rest. We can assist nature, however, in restoring the tissues to normal conditions after the operation by reducing the laxity of the fibers of the pericemental membrane with a stimulating astringent, known as zinc sulphocarbolate. Its powerful astringency, combined with its antiseptic qualities, will cause the fibers of the pericemental membrane to hug closely around the gingival border and all along the pocket the vacuity will disappear. This is a very desirable condition to work to, because by causing the gingivæ to closely surround the tooth foreign materials will not easily crowd into the pockets. Furthermore, by the constringing of the blood vessels, which this medicament does, we see that inflammatory products are lessened and soon disappear. The tissues become natural in color and the neurasthenic pericemental membrane recovers its tonicity. After nearly two years' use of zinc sulphocarbolate I have found that it seems to be almost a specific for the flow of pus. Pus readily disappears, but it must always be borne in mind that the removal of irritants is the first step before one can expect to stop the flow of pus. At first I used a twenty per cent solution of zinc sulphocarbolate, but now use only a ten per cent solution of the drug dissolved in cinnamon water. The efficiency may be still further increased by using in place of cinnamon water the official antiseptic solution known as Liquor Antisepticus. If color is desired add the Tincture of Cudbear, a few drops to the ounce.

Zinc sulphocarbolate is an official preparation made from sulphuric acid, phenol and zinc oxid. It is readily found in first-class drug stores, and is not difficult to dissolve in water. This remedy does not injure the teeth or cauterize the soft tissues. The solution is injected into the pockets with a "Sub Q" syringe, after which massage is useful. This same solution is valuable in the atomizer for a general spray in the course of prophylactic treatment of the teeth. Directed to inflammatory areas of the mucous membrane it acts remedially. In abscesses with a sinus it is also very valuable. Reports from various sources indicate the usefulness of zinc sulphocarbolate in antral affections. The more one employs the agent the greater become its uses.

THE PRACTICAL DENTIST.

BY WALTER H. NEALL, D.D.S., PHILADELPHIA, PA. READ AT ALLEN-TOWN, PA., CONVENTION.

A practical man is one who gets down to the theory of the matter in hand and makes use of the principles involved, thus building a foundation for a stable superstructure.

In a measure, dentistry is regarded as an exact science so far as the term is applied to the filling of teeth, the extraction of the same and in the making of plates and bridges. But, as to the prevention of decay or the loss of the dental organs, due to certain systemic conditions, the dentist has no real practical rule to follow absolutely. He often gropes in the dark. True, for a season, he may retard the ravages of microorganisms, but he has no infallible remedy, hence almost every practitioner has his own favorite method of procedure and some of them are far from possessing any practical value whatsoever.

This fact is too well known to admit of argument and can be surrendered to those who are deeply engaged in research work, with the hope that some day the scientist will discover the long-sought medicament or operation that will preserve man's teeth till he shall be ready "to shuffle off this mortal coil."

Of all the professions, dentistry requires the practical man. He can either mar or beautify the mouth of his patient, and, in either

event, his mode of procedure may be upon correct lines and strictly within his rights.

Query: Is a student, then, a practical man when he has passed his examination, received his diploma and has finally added the certificate of the State Board to his earthly possessions?

In a measure, yes; for he is supposed to be well grounded in the fundamentals and can perform several operations with credit. His experience is limited and he therefore does not really come within the actual practical lines until he has been established some four or five years; and during this time the young dentist has a "hard road to hoe," for failures are frequent; yet, if he is conscientious, he is, in a degree, pardonable, but if he persists in "short cuts" and seeks not the means to eradicate the stumbling blocks, then these failures become criminal.

But it is not so much to the student that this paper is addressed, but rather to the dental profession as a whole, for although the dentist is engaged in a profession requiring nicety, judgment and skill, yet he is, at all times, encompassed by wild theories and placed in positions where experimenting offers excellent opportunities.

There are points which are rarely considered, although they are of vital importance and handicap the dentist in his work. They detract from the practical value of his labors and are often the result of carelessness or the want of proper investigation or of a narrow course in teaching.

Can one imagine a dentist using a piece of rubber dam over and over again? That is, first for Mr. A. and then for Mrs. B. and later for Miss C., and cast aside only when its usefulness is no longer apparent. However reprehensible this may seem, a certain dentist acknowledged to the writer that such was his practice in connection with that necessary adjunct to dental operations. The piece of dam, after each use, was washed (?), dried and laid away until called into requisition again. This may sound like drawing the long bow, but the acknowledgment was made in the presence of a salesman who is connected with a noted dental supply house.

This mode of procedure may save the dentist a few dollars, but if a man is so utterly devoid of the fitness of things as is shown

in the instance just noted, he certainly will fail in matters of greater moment, hence he is not a practical man, for he is derelict in one of the great fundamental principles of the dental art, and that is cleanliness. It is the thorough and proper doing of the little things of the profession that denotes the practical dentist. This observance of detail paves the way for successful operations and assures the practicability of the work in hand.

It is taught that an accurate, workable partial impression cannot be obtained from modeling compound alone, but your practical man, by proper manipulation and chilling of the compound, has obtained and does obtain accurate, non-shrinkable impressions, and your practical man's success along this line is in the proper and careful working of the impression material. He has made a study of it.

It is also claimed that a bridge piece must not be soldered without removing it from the model and investing the same. But, here again your practical man has demonstrated time and again that there is no perceptible change in the continuity of the piece when soldered upon the original plaster cast; that is, the cast made from the impression with the gold crowns in place.

Practice and a certain degree of expertness save much valuable time, and time to the dentist is a precious commodity. And yet, there are many so-called quick processes which are not at all practical, still they are daily employed because, in their use, there is a saving of time.

For instance, a certain dentist who enjoyed a lucrative practice almost invariably made and fitted his gold crowns while the patient was in the chair. This, in itself, is a proper thing to do, but the method employed was certainly reprehensible. His procedure was to take a circular piece of gold and slash it all around its periphery and then by bending, folding and crimping, the disk of gold was gradually made to conform to the neck of the tooth to be crowned. The golden ferrule so made was treated to a liberal dose of solder, over its whole outer surface, trimmed, burnished and cemented upon the prepared root or tooth. His crowns for bridge pieces were made in the same manner.

Here was quick work indeed, but entirely outside the realms of practicability, for the inner surfaces of these crowns were obvi-

ously corrugated and only here and there had actual contact with the abutment. Thus were furnished nice little traps for the disintegration of the cement and the subsequent lodgment of food with resultant decay. When taxed with this possibility the answer was: "All gold crowns ought to be removed and replaced every four or five years." In fact, his patients were taught and believed that fillings, crowns and bridges were exceedingly short-lived and if failures were noticed, after the lapse of several years, it was *not* the fault of the dentist; but rather were they attributed to the weakness of tooth structure. When his patients finally "got wise," other dentists of more practical turn of mind were booking extra appointments.

Not so many years ago, it was considered eminently practical to cut between the teeth, the so-called V-shaped spaces, for the purpose of preserving them from decay, although, to the credit of a few, this method of tooth salvation (?) was vigorously combated. Today it would be considered a misdemeanor and likely a case for the court. And yet there are isolated cases, where incipient decay, both between the teeth and upon their labial and buccal surfaces, can be cut away with perfect propriety and with a sense of being entirely within practical lines.

That this society stands for practical work and practical men, needs but a glance at the announcement of its 58th meeting. There it is found that a "cordial invitation is extended to all *ethical* practitioners to attend" and further on occurs a reference to the same subject: "All *ethical* practitioners residing within the territory embraced by the association are eligible to membership, etc."

This certainly assures one that an ethical practitioner is deemed a practical man as well as an honest one. It shows that it is the earnest endeavor of societies and conventions to gather within their fostering care all dentists who have made and are making enviable names in the ranks of their profession. Why, the very idea of such a gathering as this proclaims instantly that we have met for the purpose of practical work; to observe what progress has been made in the dental art, as well as to profit by clinics, exhibitions, the reading of papers and the discussions relating thereto. It helps to take the dentist out of the everyday rut, for if the dentist does not lift his nose from the eternal grindstone,

how is he to observe the changes on every side; if he does not keep abreast of the times, it will not be long before his patients will bring the subject abruptly before him, from reading, from friends and from observance of the methods employed by other practitioners.

It is not necessary to fill your office with every sort of contrivance on sale in the market, but it is requisite that you should have the best sanitary appliances as regards cuspidors and sterilizing outfits. These are imperative. All labor-saving devices are time-savers as well and should be found in all well-regulated offices. There are other points of practical moment to the dentist. Do dentists, as a rule, save? Do they amass fortunes? I wot not. But there are means at hand whereby the proverbial "rainy day" can be provided for. Life insurance is one, accident insurance another and the Building Association still another, and the practical dentist in the heyday of his success secures the future by embracing such opportunities.

There is yet another phase of the subject; to be consistent as well as practical, the question of the collection of dental fees should receive serious attention. There are men, no doubt, who are so engrossed in research work and in scientific experiments that the sordid question of money never enters their minds. In fact, many instances are recorded in which savants are noted for their carelessness in attire, their neglect of proper nourishment and their utter indifference to any monetary consideration, but they are the exception to the rule.

There are, of course, individuals who are financially able to devote a life to doing good and ministering to suffering humanity without pecuniary reward. Still, in every avocation the question is: "What do I get for this?" If something is to be gotten, something must be charged for and something must be collected. If the dentist neglects his collecting after making his charges he only is to be blamed.

A great many people are perfectly honest and expect to pay and would, if the account was properly and systematically presented. Neglect in this case often paves the way for a loss. The dentist sends his bill when he "feels like it;" there is no set rule

or time, and the patient soon recognizes the loose business methods employed and cannot be censured if he fails to promptly respond.

It is simply nonsense when one hears a fellow practitioner talking about elevating his profession by taking it out of the realm of mere money-getting or of advancing the science by purely ethical means. Why, one can almost safely wager that deep down in his heart he is wondering how his tailor, his baker and his grocer are to be paid their just dues.

As the world is seemingly swayed by "filthy lucre," is it not at once apparent that it is farcical to claim that any profession should be exempt from participating in the general distribution of that necessary commodity?

Therefore, the dentist should make just charges and be intensely practical in collecting them. It is also a grave mistake not to make a charge for every operation performed, however trivial that operation may be. The patient comes to the dentist and receives a service and, according to the ways and usages of the world, there is but one means of compensation and that is by the payment of money, for just as "a green Christmas maketh a fat churchyard," so "a lean pocketbook maketh a hungry stomach."

THE DENTIST IN THE UNITED STATES NAVY.

BY RICHARD GRADY, M.D., D.D.S., RESIDENT DENTIST, UNITED STATES
NAVAL ACADEMY, ANNAPOLIS, MD. READ BEFORE THE SEC-
TION ON STOMATOLOGY, AMERICAN MEDICAL ASSO-
CIATION, AT ATLANTIC CITY, N. J., JUNE,
.1907, AND REPRINTED BY COURTESY
OF THE JOURNAL OF THE ASSO-
CIATION.

The title of this paper is ambitious but not correct. In the Navy there is no such grade as dentist, as there is no authority of law under which such an appointment can be made, except for service at the United States Naval Academy.

The need of dental services in the Army and Navy was first urged fully fifty years ago. The matter had been laid before Congress several times previous to the Spanish-American War, but without any action being taken. A dentist was appointed

at the United States Naval Academy with the rank of assistant surgeon, and that was all that had been done in the matter, except that at the opening of the Civil War all army surgeons were supplied with forceps.

It is difficult to state with precision at whose suggestion the initial steps were taken which culminated in legislation creating a dental corps in connection with the United States Army service, but in 1898 when the National Association of Dental Examiners met in Washington, D. C., I prepared two resolutions signed by Dr. T. S. Waters of Baltimore and myself for adoption, one looking to the unification of state dental legislation and the other to the appointment of dentists in the United States Army and Navy.

To show the position assumed at that time (when I had not the slightest expectation of becoming dentist at the United States Naval Academy) the latter is quoted:

WHEREAS, Congress adjourned without action on the bill introduced (May 27, 1898) to establish a branch of the Medical Department, to be known as the Dental Corps; therefore be it

Resolved (1) That it is the sense of this meeting that the matter should be taken up again, with the hope that another effort will result successfully, and that the dentists of the country, by letters, and the organized societies, by resolutions, should give evidence to their representatives in Congress that they do sincerely desire such a law.

Resolved (2) That a committee of five be appointed to inaugurate steps looking to the speedy action of all dental organizations, cordially endorsing the employment of qualified dental surgeons in the Army and Navy.

Resolved (3) That this meeting notes with pleasure, that while various attempts were made throughout the country, notably by the Missouri State Dental Association (which was the first to endorse the bill referred to) and the Chicago Dental Society, the issue was brought to a practical and successful result, at least so far as the forces now in the Philippines are concerned, by the appointment of a graduate of the dental department of the University of California and two assistants, to serve with General Merritt's Army.

Sooner or later positive action must be taken by Congress on the question of dentists in the Navy. Congress has already recognized the value and need of dental services in the Army by providing for thirty-one contract dental surgeons and appropriating \$57,960 for their salaries this year, the addition to the thirty heretofore authorized being for the United States Military Academy. I shall conclude this paper with the substance of the latest discussion of

the question of dental surgeons for the Navy in the House of Representatives, February, 1907, so ably led by the Hon. Robert G. Cousins of Iowa, of the Committee on Naval Affairs, which had unanimously recommended the bill. America is the only nation which has made anything like adequate provision for the dental care of its soldiers. The dental force in the South African War (according to the London *Lancet*) was "one dental attendant to this British Army of about 200,000 officers and men."

Every valid argument used in favor of dentists in the Army may be urged with equal force in behalf of dentists in the Navy (at naval stations, at least). As the United States Army has its dental surgeons, the Navy certainly needs the same adjunct to its medical staff. Really the naval man has fewer opportunities than the military to secure the services of a civilian dentist on account of his environment.

If the services of the dental corps of the Army, as officially published, have almost immediately relieved many cases that were previously carried for several days on the company's sick report, why could not a similar statement be made of the Navy, under like conditions, where the record gives 268 days as the total number of sick days from two cases of dental caries, and the daily average of all cases under treatment at the same time as only 7.36?

If public sentiment is so aroused as to demand enlightened and adequate dental treatment for the officers and enlisted men of the Navy, it will be found feasible for Congress to meet the demand. Socrates is credited with having said: "The State is a great and noble steed, who is tardy in his motions, owing to his great size, and requires to be stirred into life; hence a gadfly is necessary to fasten on the state to arouse, persuade and reproach, lest the state may fall asleep."

Who are so competent to know the requirements of the naval service as those who are familiar with it? Besides, why should the Secretary of the Navy and the Surgeon General be criticized for recognizing the obstacles which surround the launching of a new line of service—a Dental Corps in the Navy—an innovation contrary to established policy? The only hope for passing a bill to add a corps of dental surgeons to the Bureau of Medicine and

Surgery of the Navy is by cooperating with these officials and not by abusing them.

The text of the bill offered February 14, 1907, as an amendment to the Naval Appropriation Bill, consists of one paragraph, which follows, and its discussion shows how it is viewed by members of Congress when called on to act, while the objections made should be borne in mind in any contemplated legislation submitted to the next Congress from any source:

Dental Surgeons for the Navy: That the President be, and he is hereby, authorized to appoint dental surgeons to serve the officers and enlisted men of the Navy and Marine Corps, not to exceed thirty in all. Said dental surgeons shall have the rank and compensation of acting assistant surgeons in the Navy; shall be graduates of standard dental colleges, trained in the several branches of dentistry; of good moral character and professional standing, and shall pass a physical and professional examination; and their appointment shall be for a term of years, and revocable at the pleasure of the President, and the sum of \$50,000, or so much thereof as may be necessary, is hereby appropriated for that purpose.

The points considered are:

1. The appointment of dental surgeons should be for a term of years and revocable at the pleasure of the President.
2. If we are to have dental surgeons as officers in the Navy they will have to go on the retired list and be appointed for life the same as other officers.
3. In reference to the desirability of having dental surgeons in the Navy, certainly some provision ought to be made for them.
4. Does the Committee on Naval Affairs believe that it can create any commissioned officers in the Navy who will not be appointed for life and put on the retired list within a very short time by law?
5. The bill does not create a dental corps; it simply hires a number of men, dentists of good standing, who shall have the rank of assistant surgeons, the right to discharge them at will being left to the President.
6. The committee in providing for dental surgeons discriminates against them. An assistant surgeon of the Navy must be appointed by the President and confirmed by the Senate. Now it is proposed to give the same rank to a dental surgeon, but his

ppointment is not confirmed by the Senate; he is appointed for a term of years—no one knows whether it be for one year or fifty years—but at the pleasure of the President. Certainly if we are going to provide these surgeons in the Navy we ought to provide them on exactly the same basis as other assistant surgeons.

7. An assistant surgeon is a commissioned officer.

8. The Navy probably needs dental surgeons as much as the Army, and it has worked admirably in the Army. Providing dental surgeons in the Navy ought to be on the same basis as the dental surgeons in the Army. The Army has no commissioned dental surgeons; they are contract dental surgeons. This amendment proposes that they shall have the rank of assistant surgeons, revocable at the pleasure of the President. That changes the law and would get rid of an officer without a court-martial. The President, unless some charge was made against a man, would undoubtedly leave the assistant surgeon in until the time of retiring and retire him with rank and pay of assistant surgeon.

9. Both arms of the service should be alike so that we shall not be constantly hammered to raise one to the level of the other.

10. Have contract dental surgeons until the time comes when we can report a bill outside an appropriation bill to deal with this question as it should be, and put these men on the basis they are entitled to have in accordance with the dignity of their profession.

11. If he is a contract dental surgeon the department would have the right to remove him without going to the President. The chief medical officer is the proper one, if he is to be removed for incompetency.

12. The government ought to provide for the needs of the Navy along this line. Do not favor any provision that authorizes the President or any other officer arbitrarily to remove any officer at his pleasure. The tendency of that system is to make flunkys and sycophants of every man in the service subject to that power.

13. Clearly the intention is to make them contract dental surgeons. The Army dental surgeon is a contract dental surgeon.

14. The army contract does not run for any definite time. The medical department of the Army has charge of that. It would

be better to put the power of removal in the medical department of the Navy.

15. Strike out the word "rank" and provide for the pay of an assistant surgeon of the Navy, then make him subject to removal by the Surgeon General of the Navy, and all will be accomplished that can be in this bill of putting the two arms of the service on exact equality.

16. You could not secure competent dental surgeons to go away and remain for a cruise of a number of years. You would cripple the efficiency of this proposition if you made it impossible to get dental surgeons who could remain away for a term of years, which you could not do if you should merely make them contract surgeons.

17. The dental surgeon of the Army, when he makes the contract, surrenders his practice absolutely. He goes to Alaska, to the Philippine Islands, or to Cuba if his regiment is there. He is employed simply as a contract surgeon without any term of years. If he is competent he will stay as long as he is able to do his work.

18. What class of men are obtained in the Army—students, beginners? No, an excellent class of men. But every one of them now asks for a commissioned rank. Do not want to see one branch of the service get a commissioned rank and have thirty-odd men the other way in another branch of the service.

The following are extracts from the report of the Committee on Naval Affairs which accompanied Hon. Robert G. Cousins' remarks:

1. At present there is no provision of law under which the Department can employ dental surgeons except one for service at the Naval Academy.

Surgeon-General Rixey informs this committee that the dental operations performed by the hospital stewards "are limited to simple procedures and urgent cases," that "this arrangement is a makeshift, unsatisfactory to the Bureau," that "the necessity of the care of the teeth of the enlisted men existed and its importance to the health of the Navy is appreciated," and therefore this makeshift was resorted to "until legislation could be obtained giving advantages to the enlisted men of the Navy similar to those which the Army has had for several years."

2. When men are kept at sea continuously for a considerable time or located at remote stations where dental surgeons are inaccessible, it seems to us an inexcusable hardship, as the neglect of proper treatment for the

teeth may ultimately result in great expense through pensions, besides the inhumanity and suffering which necessarily occur in the absence of prompt and scientific treatment of the teeth when needed. The charts or diagrams of some fifty or more particular cases represented to this committee from a single station at Newport, R. I., is ample proof of conditions which ought not to exist. One apprentice but 16 years of age had lost every one of the teeth from his upper jaw; another, aged 18 years, exhibited cavities in his fourteen upper teeth; another, aged 16 years, had lost practically all of his molar teeth, and the few remaining teeth were imperfect; another, aged 17 years, had lost seven teeth, and another, aged 18 years, had lost seven molar teeth. Several others of the fifty cases from 16 to 18 years of age had lost from three to six teeth. It was said of these cases, in general, that they presented either ordinary cavities of decay, dead teeth, inflamed gums, chronic abscesses discharging pus in the mouth, pus-producing diseases of the teeth, gums, and underlying bone, or germ-laden foreign matter in contact with the gums and teeth. Such conditions cause gastric and intestinal disorders, impair vitality, and make one more susceptible to infectious diseases. Experts in dentistry inform us that, under present conditions, a large percentage of the cases exhibited from this one station must inevitably lose their teeth at an early age, which may render them pensionable under existing law.

Let us consider the subject under three heads: What do we want? Why do we want it? What is the best way of getting it? Oneness of aim does not imply identity of means. A cautious conservatism is the duty of the hour; conservatism in method, and cooperation and forbearance in thought and action. It is as natural and allowable that another man should differ in opinion with me as that I should differ with him, and if we are both sincere we should have mutual indulgence.

WHAT IS WANTED.

We want a corps of dental surgeons in the United States Navy assigned to such naval stations as would make their services available to the officers, enlisted men and apprentice boys of the naval and marine military service and training schools. With the Army dental corps established as a precedent (it is the thin edge of the wedge), the creation of a similar service in connection with the Navy should be readily accomplished. If the Government finds the dental corps an indispensable part of Army medical practice, should it not, at least, provide for dental treatment for the enlisted men of the Navy, especially those on foreign stations for a period of two or three years, and for those restricted in or

deprived of their liberty? If the Government considers it necessary to employ surgeons, pharmacists and chaplains in the Navy, why does it not employ dentists?

WHY IT IS WANTED.

Not forgetting that military and naval hospitals never originated from the spirit of humanity, but have been born of sheer necessity, we want a corps of dentists in the United States Navy for, we argue, not only humanitarian but economic reasons. We state, on the testimony of the Surgeon-General of the Army, that the cost of maintaining it will be small compared with the relief from suffering obtained and the greater efficiency of officers and men who have dental service. Moreover, it would prove an economic investment in the matter of hospital expense and pensions, as Dr. Marshall, Army dental surgeon, says: "In treating these lesions of the mouth, dysentery and diarrhea are cured in a few weeks that, without treating the oral cavity, would have required care for months," and the Pension Office states that: "Loss of teeth from traumatism or scurvy constitutes of itself a pensionable disability," and: "Diseases of the mouth (gums) and loss of teeth are accepted as results of scurvy."

A writer in the *Medical Record* states that it is no use to dose patients with medicine when many of them are constantly swallowing any quantity of germs from unclean teeth, and in many cases large amounts of pus from abscesses. Another writer tells this story:

"On the march every man was his own dentist. Exercising that resourcefulness which necessity breeds, soldiers would plug cavities in aching teeth with tobacco, cayenne pepper, rubber (scraped from waterproof sheets), anything calculated to cover or kill an exposed, throbbing pulp. Such treatment rarely proved effective. After tossing through sleepless nights, the swollen-faced victim would parade with the sick, take the operating chair (an empty biscuit box) and submit to the doctor's hug."

Writing about the South African war, an English dentist says:

"It was necessary that the teeth of the soldier should be especially good. In the early days of the campaign, when volunteers were rejected on account of bad teeth, the War Office was laughed to scorn. "We don't want to eat the Boers," was said derisively. No, but they had to eat something a lot tougher than human flesh, and hundreds of men have latterly been invalided home on account of bad teeth."

A writer in the *Pacific Dental Gazette* says:

"At the Naval Academy our Government finds it necessary to employ a dental surgeon in order to make good officers of cadets. Why is it not necessary to employ dental surgeons for them after they have left their alma mater and are thousands of miles from home?"

Although the men enlisted for the naval service have, presumably, sound teeth, yet there is suffering among them from various dental troubles owing largely to the fact that from the time of enlistment to the time of discharge (four years) they have little opportunity to secure the services of a dentist, and their pay is such that they are in no position to engage qualified civilian dental surgeons.

Dr. Otto Hollinger, Chicago, says:

"It was my good fortune to serve in the United States Navy during the Spanish-American war as an ordinary sailor, and I agree in the contention for dentists in the Navy and in the Army. When we were on board the flagship "Lancaster" at Key West, preparatory to going to Cuba, a marine came to me with an aching molar. I did not have any medicine or instruments with me, and I sent him to a surgeon, who found a third molar aching very badly. The surgeon thought that by extracting the third molar he would relieve the toothache, but he broke the tooth off, and thinking the tooth was locked with the second molar, he extracted the second molar also, but the toothache was not stopped and he then extracted the first molar, which also was decayed. There were three teeth lost, and the poor fellow was sent out to service, but he came back in about two weeks in a very bad condition and was sent to the hospital, placed under a general anesthetic, and the roots were taken out."

"In the time of service, men should have attention given to aching teeth, and then when they come into port they should receive the best that science can give, because these men are giving their best to the Government. Dr. Marshall's suggestions and statements in the course of time will perhaps be greatly modified, but as for belittling these men who are giving their lives for us for from \$13 to \$19 per month, I do not think that the Fourth International Dental Congress should go on record as countenancing anything of the kind."

Medical Inspector Howard E. Ames, U. S. N., recently Senior Medical Officer at the Naval Academy, has given me the following regarding his experience and practice respecting the teeth in his naval career: The sad neglect of the teeth and the apparent wide ignorance of their use and value has caused so much suffering that he has always endeavored to prevent and correct the causes of such troubles. The number of sick days caused by defects in the

teeth in the Navy would be surprising if known. The sacrifice of teeth by extraction that could have been saved by the dentist is unknown. He has always, when possible, arranged with some dentist to attend the requirements of the crew in their tooth troubles, for which special rates were made in keeping with their pay. This was done to encourage the men, whose pay is not sufficient to secure the services of a competent man, unless the conditions were explained, and also to prevent their falling into the hands of quacks.

In the Greely Relief Expedition the teeth of every member of the crew of the "Bear" were carefully examined and all defects remedied. The result was that not a man suffered from toothache, while on other ships trouble of the teeth occurred. On the United States ship "Detroit" he carried a dentist from Hongkong, China, to Nagasaki, Japan, a distance of two thousand miles, to put the crew's teeth in order, and before the trip the dentist worked on the ship over a week and after he reached port a week's more work kept him busy.

It has been his habit when the ship is in port for any length of time to carry out these ideas, and the result has been most satisfactory. Further, he is a strong advocate for the establishment of a Dental Corps to be maintained at each of our naval stations.

Rear Admiral Caspar F. Goodrich, U. S. N., in writing of the Camp of Sanitation, League Island, says:

"The wants of the men in one essential were specially supplied, and on a scale novel to my experience. Surgeon Biddle interested himself so much in this matter that it was not possible to deny him, even had I been moved to do so. A tent was set apart near his dispensary and a competent dentist engaged who brought down his chair and engine and all other instruments of torture which a diabolical ingenuity has devised. His victims are like the sands of the sea, but happily sorrowing, they left the camp and went into the service every man jack of them sound in teeth. It goes without saying that a special schedule of prices was agreed on by which the men secured first-class work at the lowest possible rates and the dentist gets lots of valuable experience."

Captain Howe, who possesses the double qualification of active service in South Africa as a combatant during the war and a licentiatehip in dental surgery, says that hundreds of otherwise suitable recruits are rejected owing to defective teeth, which could be made serviceable at a relatively small cost, and even

when a man is accepted the state, as a rule, does nothing to conserve his teeth. Should a soldier's teeth commence to decay nothing is done for them until they ache, and then they are extracted, the result being that when the reserves are called up, as in 1898, many men are rejected because they have an insufficient number of teeth. The loss in the fighting strength of the Army during the late campaign owing to bad teeth and complaints traceable thereto was so great that before the end of the war the Government had sent out twelve civil dental surgeons, the result being a marked success. A dental surgeon has been sent out to Somaliland for duty during the present campaign, and at home two dental surgeons are being employed temporarily in London and in Aldershot, with most successful results. Captain Howe lays stress on the absolute necessity of a policy of conservation of teeth during the whole of a man's service and suggests a plan, including the appointment of a staff dental surgeon at the War Office, to secure the attainment of this object.

HOW TO OBTAIN IT.

As to the best way of getting a dental corps in the Navy, first and foremost should be sought and obtained, if possible, the recommendation of the Navy Department. "With the recommendation of the Navy Department," says the committee of the National Dental Association, "it would be easy to secure legislation that would supply the Navy's need in the premises." That has now been given, so far as the Bureau of Medicine and Surgery is concerned, in these words of Surgeon-General Rixey: "The Bureau recommends that Congress be asked to provide for the employment of dentists to be stationed at the large stations at home and all the stations beyond the territorial limits of the United States."

Granted that the claim for a commissioned status has been worked out as a separate proposition in the bill offered in Congress, the bill must be carefully considered in relation to the established order into which it must go, if enacted into law, and it must work in unison and harmony with naval practice, otherwise the achievement would be mischievous.

Let us adapt ourselves to the situation. The dental surgeons of the Army are assigned to stations in Cuba, Porto Rico, Alaska,

the Philippines and the United States. Similar assignments could be made to naval stations if dentists were employed in the Navy, say, to Boston, Mass., Newport, R. I., Brooklyn, N. Y., Philadelphia, Pa., Washington, D. C., Annapolis, Md., Norfolk, Va., Havana, Cuba, Bremerton, Wash., San Francisco, Cal., Yokohama, Japan, Cavite, P. I.; also to Montevideo, Uruguay, and Villefranche, France, where the ships of the South Atlantic Squadron and the European Squadron, respectively, stay for some time. At the naval stations, where ships are laid up for repairs and receiving ships are located, large numbers of enlisted men are found who have time which could be utilized by the dentist who may have the advantage of abundant room. Strange as it may seem, a naval vessel in these days is not at sea for more than a month at a time, and naval ships spend fully as much time in port as they do in cruising. I gathered as the unanimous sentiment of medical officers and others of the Navy that there is no place for the dentist on sea-going vessels. Such vessels are provided with dental cases, each containing a set of forceps, elevators, excavators, engine burs, socket handle for burs, plastic filling instruments and high-grade puttapercha. These are used by the surgeons and hospital stewards, some of whom have taken courses in dentistry. Dr. Pike of California, who is located near Mare Island, has "had naval surgeons call for a list of materials and medicines to be used in relieving the various pains emanating from the mouth."

Practically there is no room on ships for dental work, for chair, cabinet, engine, etc. If located in or near the "sickbay" the dentist could work on only bright days. As to living quarters there might be trouble.

Recognizing that the equipment of the general surgeon is not wholly adequate to relieve the diseases incident to the mouth, teeth and jaws, Surgeon-General Rixey has provided a course of lectures in the Naval Medical School in Washington. These are on elementary dentistry and instruction in the treatment of ordinary dental troubles, including relief from suffering, the insertion of temporary fillings to protect teeth from further decay until a favorable opportunity can be secured for permanent work, and the extraction of teeth. This action, together with the policy of the Bureau of Medicine and Surgery for the employment of

dentists, shows that the Navy Department realizes its responsibilities. My order for this duty was from the Secretary of the Navy and was in part as follows:

"You will proceed to Washington, D. C., for the purpose of delivering lectures on the subjects of dental emergencies and the care of the teeth of the Navy personnel, on the first and second of April, 1907, before the Naval Medical School. On the completion of this temporary duty you will return to the Naval Academy, Annapolis, Md., and resume your regular duties."

In conclusion, it is not so much to the facts presented to Congress in the report of its Naval Committee (which are disquieting enough, especially respecting the teeth of apprentice boys) to which attention is directed at this time, as it is to the intelligent manner in which members of the House advocated the appointment of dental surgeons for the Navy.

DISCUSSION.—*Dr. James McManus*, Hartford, Conn., said that experience as a member of the committee of the association with reference to getting these bills passed has convinced him that if the members of the dental profession had been in greater unity, if they had taken a little trouble to look into the matter more carefully and closely, if they had been willing to listen to one, even though they differed with him, and had tried to reach a point where they would all work together, and had then gone before the Military Committee and the Naval Committee with a plan carefully prepared, showing no feeling, they would have got much quicker action from Congress. He considered it a serious matter to go out log-rolling with the members of the House and members of the Senate to get certain things done. He feared that there has been too much of the political element in this matter, and that there has been too much effort on the part of men to get their ideas through, rather than to look for the humanitarian side of the question, as they should. Dr. Grady, he said made some statements which surprised him very much, and other statements of which he had read. He always supposed that there was an examining board, and that no one was accepted, either as a sailor or soldier, who did not have tolerably good teeth, and still the report given out indicates that some of these fellows have no teeth at all. Dr. Grady, he continued, stated that ships remain at a port generally more than a

few weeks at a time. While there are no facilities for doing dental work on board a ship, he thought that the dentists in the different ports could do all the work necessary, as was suggested by Dr. Grady. Dr. McManus agreed with Dr. Grady that if this matter were presented to the public more clearly, and if the dentists throughout the country would work more in harmony, something could be done that would be good for the sailor and soldier as well as for the Government, and recognition of the dentist's status would come in due time; but to attempt to settle affairs as they are now, regulating the Army and Navy, to go before Congress and ask for certain things that will be in conflict with the law, is a very foolish move. Dr. McManus was pleased to learn that Dr. Grady had been asked to address the Navy surgeons on this question. That, he said, makes for the benefit of the dental profession before the public. It is well that the highest order of surgeons in the country, those of the Army and Navy, have asked a practicing dentist to address them and give them some information on the care of the mouth and teeth.

Dr. E. A. Bogue, New York City, referred to a paper by Dr. Cronin, who has in charge seventy-five other physicians making an examination of the school children in New York City, in which the statement is made that something like 50 per cent of the preventable diseases were spared the children because of the examinations made. Dr. Cronin told Dr. Bogue that he had sent out 40,000 cards to the parents of the children notifying them that their children were afflicted with diseases of the eye, the ear, the tonsils or the teeth, and suggesting that these children be referred to their family dentist or physician. He received 12,000 replies. Dr. Bogue felt that a very succinct statement of the conditions which Dr. Grady has shown could be made by medical men, showing what the results of those conditions are almost sure to be, and what proper treatment will do. Those things should be put before the legislators. They do not partake of politics or personalities, but they do partake of the humanitarian feeling. Dr. Bogue believed that a statement of the expense of treating the sick in the hospitals because of dental diseases, and the amount of saving that might be made, would present an economic feature which would also appeal to the lawmakers.

Dr. V. A. Latham, Chicago, pointed out that it is a very good thing to show lawmakers the necessity of the services of the physician and the dentist. Dr. Latham has had some experience in dental work on ocean liners, and feels that anyone could meet the conditions caused by the different changes of temperature, and which account for the need of the dentist. There is no one, she said, who has ever taken the continental trips but knows of the trouble travelers have with their mouths. Dr. Latham's experience with naval men and young fellows in the naval reserve has been that men who have worked on gunboats complain bitterly of the need of a dental surgeon, more so, even, than in the Army.

Dr. F. L. Fossum, New York City, was in accord with the opinions expressed by Dr. Grady. Cooperation on the part of American dentists, he said, is absolutely necessary to accomplish any part of the purpose outlined by Dr. Grady. British medical men deal with the subject along the lines referred to, as far as pathologic conditions are concerned. In an editorial in the *British Medical Journal*, on the teeth of the nation, it was there pointed out how great a calamity befell the British Army in the South African war in regard to the teeth of the soldiers. It referred to the laying up of the men with dental diseases, loss of teeth, finally their refusing to do duty on account of the condition of the teeth. There is only one thing to be feared, he said, and that is, educating medical men in dentistry. No dentist fails to realize the mechanical skill required and the many difficult, fine points of minor surgery that must be considered and understood to save teeth. Dr. Fossum suggested that if the American Medical Association, as a whole, will heed the work of the Section on Stomatology, and accept articles along the line suggested, especially regarding remedies proposed to save the teeth of the men of both Army and Navy, then the dental surgeon will be accepted and will be placed on a par with the rest of the officers in both Army and Navy.

Dr. Truman W. Brophy, Chicago, stated that he has had a little to do with soldiers in the National Guard, as an officer in the First Regiment of the Illinois National Guard. He found, to his surprise, that he was kept busy looking after the mouths of

the men who had come direct from the cities. The First Regiment is made up of Chicago young men, and it would seem natural that they would look to the condition of their teeth and mouths before going to camp; but always, in camp, there is a great deal to be done, and, he said, there is no doubt about the desirability of having the plan suggested by Dr. Grady carried out. At the present time, in Spain, every man who enters the army as a surgeon must have taken a course of instruction in a school of dentistry. In England, a man who wishes to become a surgeon in the army must pass an examination on the subject of diseases of the teeth, and if he fails he must go to a dental hospital and take a course of instruction regarding such diseases before he can be admitted to the army as a general surgeon or assistant surgeon. This matter is being considered by nearly all the governments of Europe at the present time. In the International Dental Federation there is a department of Dental Surgery of the Armies and Navies of the World, and a great deal of good work is being done in that line. As a member of that body, Dr. Brophy was anxious to see the Section, with the endorsement of the general body, adopt resolutions along the line suggested by Dr. Grady, so that the legislators elect will see to it that the wishes of the people are carried out.

Dr. M. I. Schamberg, New York City, agreed with Dr. Brophy that the vote of the Executive Council, or the delegates of the American Medical Association, would carry weight. The only question is whether this thing ought to be done at once. He believes that the great harm that came from the attempt made by those in charge of the work in the Army was that they went at it in almost too aggressive a fashion, using political means, to a great extent, so that those members of Congress who had to deal with it viewed it from a really mercenary standpoint. They thought: Here are the dentists of this country trying to place themselves in the Army. It was difficult for them to see anything in any way other than from a monetary standpoint. He would not approve of dental surgeons accepting anything short of a full commission in the Navy. While serving in Porto Rico as assistant surgeon in the United States Army prior to the institution of the dental corps, he was impressed with the fact that a man's standing in the Army depended much on himself;

that the men who did the work would receive recognition. There were many contract surgeons down there that were severely criticized, and many who were accepted and entertained by their superior officers were looked on as regular Army surgeons. But, he said, suppose those officers were to remain in the Army for an indefinite period and were to become incapacitated for work. The government would not take care of them after that time, for the reason that no matter how good the service they had rendered, the law says that a contract surgeon is employed for the period he is able to work and is paid for that period, and at the termination of it he ceases to be connected with the Army and ceases to be taken care of by the Government, the same as a man who is employed to drive one of the mule trains. It is for that reason that Dr. Schamberg would not approve of any step toward the creation of a dental corps composed of contract dental surgeons. It is far better, he said, to await some definite action in that direction in the Army before taking this step to put a dental corps in the Navy.

Dr E. S. Talbot, Chicago, saw no objection to passing a resolution recommending the governing body to take such action, but any action that would be taken by the national body would have to be submitted to the House of Delegates and they would vote on it. He did not think they would take any action on it at present, under the peculiar condition of things as they now exist. It was tried in the Army matter, in the same way, and they flatly refused to have anything to do with it.

Dr. Richard Grady, Annapolis, Md., referring to what he had quoted from the *Congressional Record*, ventured to say that it was known to few dentists or medical men. Mr. Foss, chairman of the Committee on Naval Affairs, opened the subject by saying: "We have no dentists in the Navy to-day and, as you know, our men are frequently on ships for a number of months. They go on a cruise for two or three years, and are away from where they could obtain the means of properly taking care of their teeth. The Army has a corps of dentists, but the Navy never has had a corps, and yet I think there is more reason why the Navy should have dentists than the Army, because the Army is continually on the land, whereas the Navy is on the sea." The

statements made by other Congressmen are founded on observation and experience and are entitled to consideration accordingly by dentists in endeavoring to obtain legislation. The startling report respecting the condition of the mouths and teeth of fifty boys in training at Newport, as given officially, must, he said, be regarded as unimpeachable in its detail of facts, such as "one apprentice but 16 years of age had lost every one of the teeth from his upper jaw; another, aged 18, exhibited cavities in his fourteen upper teeth; another, aged 16, had lost practically all of his molar teeth, and the remaining teeth were imperfect; another, aged 17, had lost seven teeth, and another, aged 18, had lost seven molar teeth, and several others of the fifty boys, from 16 to 18 years of age, had lost from three to six teeth;" but to his knowledge, Dr. Grady said, as may be verified by reference to the reports of the Surgeon-General of the Navy, boys are rejected for defective teeth by surgeons of the Navy, and the requirements for admission to the Navy are four serviceable molars, to the Army, six serviceable molars, and to the Naval Academy at least eight opposing molars, two on each side of each jaw. Of course, dentists at times find serious deficiencies that surgeons overlook. Dr. Grady said that some Congressmen refrained from supporting the "rider" because they believed it incomplete. "If we are to have dental surgeons as officers of the Navy to go on retired list and be appointed for life, the same as all other officers . . . ought we not to say so when we commence it?" One member argued that the plan injures the profession it aims to protect: "The committee in providing for dental surgeons discriminates against them. . . . We ought to provide them on the same basis exactly as other assistant surgeons—appointed by the President and confirmed by the Senate." The measure was further jeopardized by another provision which it was claimed would "give a premium on flunkeyism and sycophancy." The disposition was so antagonistic that the gentleman in charge of the bill said, "I am perfectly willing that the words 'and revocable at the pleasure of the President' shall be eliminated," the congressional sentiment being that "it would be better to put the power of removal in the Medical Department of the Navy," just as "the Medical Department of the Army has charge of that."

Dr. Grady hoped that as a result of the discussion and inquiries the medical and dental professions would come to a better understanding on this question of dental surgeons for the Navy, and that those who really have the interests of the service and of the profession at heart would combine their efforts and make them effective, as a unit, in the enactment of a comprehensive measure, free from admitted defects or significant omissions, which should be satisfactory to all parties, because promotive of the interests of all. It is probable, Dr. Grady said, that the effort to do something adequate for dental surgeons in the Army and Navy will be resumed at the next session of Congress.

After Dr. Grady had concluded, the Section on Stomatology unanimously adopted a resolution that dental surgeons ought to be appointed to serve the officers and enlisted men of the Navy and Marine Corps.

The House of Delegates later endorsed the employment of dentists in the Navy in the following resolution:

"Resolved, That it is the sense of this House of Delegates that the efforts of Surgeon-General P. M. Rixey to secure legislative authority for the employment of dentists in the United States Navy be approved, and the Committee on Medical Legislation be instructed to exert such influence on Congress as in its judgment may be deemed wise in support of the measures making such provision."

EXPLOITATION OF HUMAN CREDULITY.—A recent editorial in the *Progrès Médical* remarks in regard to the vogue of "patent medicines" that the public will always be credulous and will always allow itself to be gulled by appeals to its credulity. This is a social evil, it adds, incurable, like prostitution, but it is the duty of the physician to seek to attenuate its effects and to enlighten the public in regard to the dangers of this hideous exploitation of human woes for the benefit of the bank account of the charlatans. In France, besides tuberculosis and venereal diseases, remedies for anemia are widely advertised and delicate stomachs ruined by the preparations sold. The physician must teach the public that the science of therapeutics is a complex and difficult art, and that it can never be reduced to the ingenious but mindless mechanism of an automatic slot machine.—*Jour. Amer. Med. Assoc.*

Digests.

THE NUTRITIONAL QUESTION AS RELATED TO DENTAL PATHOLOGY. By Edward C. Kirk, D.D.S., Sc. D., Philadelphia, Pa. It is only within comparatively recent times that we have come to realize that the teeth occupy an organic relationship to the nutritional mechanism and are affected by its processes in a manner analogous to the other bodily structures. From the time of Ambroise Pare to that of John Hunter, a period of nearly two hundred years, so little progress had been made in actual knowledge of the structure and functions of the dental tissues that the great English anatomist and physiologist depended largely upon the observations of his French predecessor for much that is recorded in his *Natural History of the Human Teeth*, published first in 1773.

The remarkable observations of Antoni Leeuwenhoek upon the tubular structure of the dentin, though published in 1678, attracted but little attention, and even as late as 1840 we find Hayden, Harris, Dunglison and others discussing the possibility of a vascular nutritive supply to the dentin, evidently unfamiliar with the relative diameters of the dentinal tubules and red blood disks, respectively, while within easy recollection of those of the present generation the question as to whether or not dental caries was an inflammatory process gave rise at one time to considerable controversy.

Coincident with this tardy development of our knowledge of the minute anatomy, the physiology and pathology of the dental tissues was an altogether different, because more active, development of the art of dentistry from its mechanical or manipulative side. The various operations of filling teeth with metallic stoppings, the restoration of lost dental organs by artificial substitutes, was an art practiced in very ancient times, so it would seem that the inherited tendency to regard the teeth as largely outside the cycle of the bodily nutritional processes, as semi-extraneous or inert organs to be treated upon mechanical principles, or that their vital relationships might be practically disregarded, has continued to affect our ideas in regard to the nature of the teeth and has undoubtedly led us into errors of practice to the great detriment of our professional efficiency at times and with damaging results to our patients.

It is a noteworthy fact that just in proportion as we have come

to realize the vital relationships of the teeth and to treat them in accordance with that conception have our modes of practice assumed a more rational aspect and the results of our treatment have correspondingly improved.

The obvious relationship of the dental pulp and of the pericemental membrane to the general nutritional system through their demonstrated vascular supply has definitely established the treatment of disorders of these tissues upon a general surgical and therapeutic basis, and we have no more difficulty in understanding and acting upon the belief that these soft tissues may be affected by disease influences exerted through the general vascular system than we have in understanding the mode of disease action from the same causes in any other organs of the body. But with the hard tissues of the teeth, particularly of the enamel and dentin, the ancient tendency to regard these as extra vital in their relationship still obtrudes itself and still makes itself evident upon our modes of treatment. The proportion of organic material in the dentin as compared with the inorganic is very small, viz., about 20 per cent (Tomes); in enamel the organic matter is much less, viz., 3.59 per cent (von Bibra). The enamel is generally regarded by dental histologists as practically a non-vital tissue, a formed material consisting of calcium phosphate and calcium carbonate, which, according to Hoppe-Seyler, are united in about the same proportions as these salts are found to be combined in the mineral apatite.

We note, then, a progressive diminution of obvious vital relationship considered as vascular connection in the dental tissues in a gradually descending series from the dental pulp as a maximum to the enamel as zero, yet we are confronted with important alterations which fatally affect their integrity and usefulness, and we term these alterations disease, a type of disease so prevalent and so important that no other affects the human race so generally; a type of disease that has created, in response to the need for its treatment, a great body of professional men with a distinctive educational system and an extensive special literature of its own.

The study of the causes of dental caries has attracted the attention of observers from remote times, and little by little the data were gathered together until the general principles of the etiology of dental decay were wrought out and enunciated by Miller about a quarter of a century ago. The data furnished by Miller's researches and the

subsequent consideration of the question by other students of the same problem finally led to the enunciation of the axiom by G. V. Black that caries is a factor of the environment of the teeth, that is to say, that the causes of caries are not to be found in the teeth themselves but in the conditions surrounding the teeth. Every present indication points also to the same conclusion with respect to the cause of that other destructive process manifested in the hard dental tissue, namely, dental erosion. Assuming these conclusions to be correctly drawn, then, the study of the conditions of the environment of the teeth becomes the next important step in the unraveling of the tangled threads of the causation of the diseases of the hard dental tissues.

Miller's researches have demonstrated that caries is originated by the agency of microorganisms that have the power of splitting up sugar into lactic acid and that it is continued by organisms that have a proteolytic action upon the organic matrix of the dentin, liquefying and decomposing it.

Similar studies by various observers show that chemical erosion of the hard dental tissues is the result of solvent action of acids upon the teeth, the acids resulting from fermentative processes in the mouth or as an acid exudate from certain mucous glands whose secretion has been altered from its normal alkaline reaction through faulty nutritional processes of the general system.

Both of these questions, if we may assume the general accuracy of the foregoing deductions, immediately relate themselves to the question of nutrition, for the reason that the growth of micro-organisms in the oral fluids and their decomposition by fermentative and putrefactive agencies is in its final analysis a question of the composition of the oral fluids, and their composition, as shown by Michaels, is directly a result of nutrition.

The study of the composition of the oral fluids has attracted the attention of observers for many years, but the subject is beset with so many and peculiar difficulties that but little real knowledge of the composition of the mixed saliva has been brought out. It is true that there are on record a number of analyses of the saliva, but all vary more or less, and the substances recorded as having been found are expressed in terms of ultimate decomposition products, which data throw but little light upon the actual composition of this important fluid as it exists in the mouth at any given time.

In the past few years Michaels, of Paris, in several communications, notably one presented to the Third International Dental Congress in Paris in 1900, called attention strongly to the importance of a study of the chemistry of saliva as related to nutritional states, particularly emphasizing the fact that the composition of the mixed saliva varies from time to time, and in different individuals these differences of salivary composition being indicative of different nutritional states. He presented many figures tending to confirm these views and emphasized the study of sialosemiology as an important means of diagnosis in the determination of certain diathetic states. In connection with the same subject he presented various chemical and optical methods for the investigation of the composition of the saliva which had enabled him to gain a fuller insight into salivary composition than had been possible by older methods of investigation.

A close study of Michaels' methods and a practical application of them almost continuously since 1900 has led me to a deep appreciation of the obligation which we owe to him for the very important suggestions which he has made in this connection.

It is not my purpose to go into details with respect to the chemical aspects of this question or to more than refer to the technique of analysis proposed by Michaels in the study of salivary composition. What I desire to bring to your attention at this time is the importance of the major premise of Michaels, viz., that the composition of the mixed saliva changes from time to time and that it is an index of the nutritional state at any given period, for in that fact we have embodied the importance of the whole question and the reason why it is necessary to study salivary analysis with a view to the diagnosis of nutritional states as well as to gain more light upon the relation of malnutrition to dental pathologic conditions.

The relation of dental caries to nutrition, and this in its turn to salivary composition, is one which, though generally conceded in greater or less degree, hardly seems to have received the attention its importance appears to warrant. We are confronted with certain well established data in regard to caries which it will be profitable perhaps to consider in their related order. First, caries is a germ disease, as has been proven by the investigations of Miller and sufficiently confirmed by others. Second, while it is a germ disease, it cannot be truthfully said that it is a filth disease, for the reason that

it is often absent from mouths to which the toothbrush and dentrifrices are unknown experiences. I saw within a week the filthiest mouth that it was ever my misfortune to have to look into in a man 65 years of age. I shall not offend your sensibilities with an attempt at a detailed account of its loathsomeness, no pest hole could have been more nauseating, yet this man's teeth were free from caries, to all intents and purposes, though his gums were in frightful condition and he was suffering from a carcinoma involving the angle of the mandible. We have all seen cases of a similar character where, despite the fact that the teeth are never cleaned with brush or dentifrices, the individuals remain immune to caries. On the other hand, we know from experience and observation that many individuals scrupulously careful in the frequent and intelligent personal and professional care of their teeth suffer from caries to an extent which sometimes results in the loss of their teeth despite all efforts to save them. In other words, we are confronted with the problem of susceptibility and immunity to caries, and we shall never be in position to successfully combat the disease until that problem has been solved. Knowing that caries is a germ disease, we have declared war upon the germ. We have carried on the war with prophylaxis, with antiseptics, with fillings and by extension for prevention, and by so doing we have gotten no further than to emphasize the fact that eternal vigilance is the price of liberty in the shape of freedom from caries. But we must not lose sight of the fact that the caries organism is an ever-present factor, and in the long run is likely to be the winner for the reason that our vigilance is prone to be intermittent and from a human standpoint is never eternal. With the discovery of the germ origin of caries, or shortly thereafter, the antiseptic idea became dominant. The problem seemed quite simple. Caries is a germ disease, therefore kill the germ and cure the disease; hence antiseptic mouth-washes and dentifrices multiplied like wolves in a famine-stricken land, but these in their application did not appear to reduce the general need for dental services; attention then came to be drawn to the study of the mouth conditions in those who were of the fortunate class of carious immunes, and several careful and painstaking researches, notably by A. C. Hugenschmidt and by Miller, were made with a view to discovering whether or not the saliva of immunes possessed germicidal properties. The result was that not only was no ger-

micial substance found in the saliva, but it was shown to be without germicidal property. This group of facts will constitute the third datum, and as a fourth we may note the fact that the saliva of carious susceptibles differs from that of immunes in several noteworthy features; first, that of the susceptible individual is usually more viscid and noticeably more alkaline to litmus than that of the immune, and when tested with V. Jaksch's iodin reagent the saliva of the susceptible gives a marked reaction, while that of the immune gives none or only a faint trace. Michaels regards the iodin test as indicating the presence of glycogen, a substance readily convertible into a fermentable sugar, which, if correct, may furnish a clue to the cause of carious susceptibility, viz., that the saliva of susceptibles contains within itself some material which is a normal pabulum for the nutrition of caries-producing fungi. This hypothesis has always appealed strongly to me for the reason that it is in harmony with the vital relations of bacteria, in fact of all organisms, that their habitat is determined largely by their proximity to a food supply. We know from the researches of Miller that fermenting carbohydrate foodstuffs undergoing decomposition by caries-producing fungi will reproduce the disease artificially in sound dentin, but we know also that mouths from which the debris of carbohydrate food is never removed do not develop carious teeth, and, conversely, we know that mouths kept, generally speaking, free from carbohydrate food debris do develop the disease. Hence it seems that carbohydrate food debris is probably not the only pabulum upon which the micro-organisms of caries are nourished, nor is it, I am inclined to think, the usual method by which these germs are nourished.

Careful studies of the food habits of a large number of individuals have developed the fact that those most prone to caries are large consumers of carbohydrate food, but the disease occurs, as before stated, in well kept mouths as well as in uncleanly mouths, the common factor in all being the viscid alkaline saliva with marked reaction to the iodin test. In pursuit of my studies of this question I have in many instances tested the effect of bringing about a change in the character of the oral secretions through a careful readjustment of the food habit, and in the case of carious susceptibles the dietary change has had for its object the proper balancing of the ratio between the carbohydrate and proteid elements of the diet list. In the beginning, in order to bring about a definite nutritional change

as quickly as possible, I have cut out from the dietary nearly all carbohydrates and placed the patient upon a mainly proteid regimen for a period of thirty days, from which point carbohydrates were gradually added until a normal nutritional balance was reached.

Under a treatment of this character the composition of the salivary secretion was markedly influenced as well as the composition of the urine, and in many instances with decided improvement in health conditions. I am unable to state from observation what effect these dietary changes have had, if any, upon the course of the carious process, owing to the short time of the observation, but I am able to state, however, with much positiveness that the composition of both the saliva and urine have been markedly changed, the saliva becoming more limpid in consistence and more nearly neutral in reaction. Some years ago in a paper before the Odontological Society of Pennsylvania I reported some observations made upon the teeth of the inmates of the Pennsylvania Institution for the Deaf and Dumb, and called attention to the large number of cases of arrested caries in children after some months' residence in the institution, where they were maintained upon a well balanced and nutritious food ration. I believed at the time, and subsequent observation has tended to confirm the belief, that the nutritional state resulting from a given food habit is an important factor, if not the most important factor, in the problem of susceptibility or immunity to dental caries. My further studies lead me to suspect that immunity to caries is not due to the presence of germicidal properties in the saliva, but to the absence of a particular pabulum which when it exists in the oral fluids constitutes the nutrient material upon which the caries-producing organisms normally thrive, and that the presence or absence of this material is determined by the nutritional state as a result mainly of the food habit of the individual. And what is true of caries is true in principle of other dental pathologic conditions. Chemical erosion of the teeth has been practically shown to be a result of acid mouth conditions due to malnutrition, while the necrotic inflammatory conditions that attack the peridental membrane and the retentive structures of the teeth, known variously as Riggs' disease, pyorrhea alveolaris, phagedenic peridentalitis, etc., are manifestly inflammatory disorders of germ origin, the invasion of the pathogenic bacteria in these cases as in all cases being due to lowered vital resistance of the tissues, resulting from

local or general malnutrition. So also the deposition of calculary deposits upon the teeth, both crown and root, is a nutritional problem, involving the intricate chemical changes resulting from alterations in cell metabolism, producing changes in the chemical composition of the oral fluids.

In view of the important character of these processes I desire to emphasize certain facts for your consideration: First, that the range of problems which present themselves for settlement by the dental practitioner is larger and more complex than can be solved merely by mechanical and manipulative methods. Second, that in order to know how to intelligently treat disease conditions in the mouth, or if we are to expect ever to successfully prevent their occurrence, we must familiarize ourselves with the deeper problems of physiology, and particularly of nutrition, and endeavor to understand the chemistry of the subject to an extent which will make clear to our minds what causes influence the composition of the bodily secretions and excretions and finally enable us to properly regulate the nutritional forces so that we may determine their composition in a manner unfavorable to the invasion of disease-producing microorganisms; in brief, we must learn to so change the composition of the body juices as to develop a maximum of vital resistance to disease invasion on the principle that good health is the best prophylactic against disease.—*Dental Brief*.

NEURASTHENIA AND SOME OF ITS ORAL MANIFESTATIONS. By Arthur B. Crane, D.D.S., Washington, D. C. As the science of dentistry progresses, it becomes more and more evident that the oral cavity must cease to be considered as an isolated field of observation and treatment. The time has arrived when dentists must have an accurate and scientific knowledge of all those metabolic, neurotic and psychic phenomena which are known to and utilized by the medical practitioner in arriving at diagnoses and outlining methods of treatment.

We have learned in comparatively recent years that not only do certain general diseases manifest themselves by morbid changes in the mouth, but indeed that some of them are first recognized by their oral manifestations. To go still further, we have learned that in the mouth lies the source of a few diseases hitherto con-

sidered general. It is without apology, therefore, that I direct your attention to a subject which might seemingly be better suited for discussion before a society of neurologists.

Neurasthenia has been called the "American disease," and has made such rapid progress among Americans during the past century that some investigators have predicted that the twentieth century would produce a race of neurasthenics. However that may be, it is certain that neurasthenia is one of the most frequent and important nervous affections in this country to-day.

The importance of neurasthenia was first recognized by Beard, an American neurologist, who in 1879 gave it its present name from two Greek words meaning "nerve" and "weakness." It is not, strictly speaking, a disease, but, as the name implies, a condition, or weakness, of the nerves.

It has been defined by Dercum as "A persistent diminution of nervous energy, together with an increased reaction, mental and physical, to external impressions." In other words, it is a nervous bankruptcy in which the daily expenditure of nervous energy is increased and the daily income diminished. The nerve cells are feeble and uncertain in their action and incapable of properly performing their functions; hence the patient is exhausted by slight causes and reacts morbidly to slight irritations.

Etiology.—No anatomic disorganization of the nerve tissue is at present known to exist as the cause of the condition. The active causes include all those influences which in any way act unfavorably upon the nervous system, such as shocks, injuries, defective vision, severe mental and physical work beyond the individual's power of endurance; worry, especially if associated with lack of rest; impure or extremely dry air, improper nutrition, excessive introspective thoughts or chronic diseases. Among the predisposing causes are neurotic heredity and low vitality.

Neurasthenia may make its appearance as local or general. A local manifestation is almost always the result of overwork or strain of the part. Distinctive terms have been applied by some writers to indicate the predominance of certain local symptoms, as "Gastric Neurasthenia," disturbances of the digestive functions; "Acoustic Neurasthenia," disorders of the sense of hearing; "Cardiac Neurasthenia," palpitation and irregular action of the heart;

"Ophthalmic Neurasthenia," changes in the vision; "Dental Neurasthenia," obscure pains in the oral cavity.

Neurasthenia is divided clinically into cerebral, originating in the brain; and spinal, originating in the spinal cord. In most cases we meet with both the cerebral and spinal symptoms, and we will therefore consider the disorder as cerebrospinal or general neurasthenia.

Symptoms.—Among the earliest symptoms are derangements of the special senses, as disturbances in the muscular balance of the eye, abnormal and imaginary impressions of taste and smell or deterioration of the sense of hearing. Other common symptoms are tenderness and dryness of the skin and mucous surfaces; weakness of the muscles and muscular twitchings in one muscle or group of muscles; numbness of the limbs, irregular pulse and palpitation of the heart, sleeplessness, a morbid craving for certain foods and drinks, irritability of the sexual organs, chilliness or creepy sensations along the spine, vertigo, fleeting neuralgias and sick headaches, blanching of the hair, flushing of the face, frequent gaping, disturbances of the digestive functions, mental depressions or excitability, loss of emotional control, morbid fears, decrease in mental capacity and loss of memory.

Hypochondria frequently assumes an important role, and not only exaggerates existing symptoms, but contributes others of its own.

The general course of neurasthenia is always chronic, and when it seems sudden it has been preceded by a train of overlooked phenomena. In milder cases there is very little external evidence of the derangement. The patient appears healthy and endeavors to hide his troubles, as his indefinite symptoms seldom meet with much sympathy. He is usually self-conscious and will seek solitude rather than society. None of the symptoms are constant, but are varied by alternate improvement and relapse. As the affection becomes of long standing, the whole nervous system becomes involved, and the patient's vigor is so much impaired that his condition assumes a grave aspect. The tissues may become degenerate, and doubtless these abnormal conditions are either induced or hastened by nervous debility, but they cannot be said to be more than mere coincidences. The nerve tissues themselves are

not diseased (in a pathologic sense), but are weak and liable to become so.

Neurasthenia in Relation to Dentistry.—Patients who visit the dentist in a weakened or nervous condition are liable to develop neurasthenic symptoms in the mouth if too prolonged or heroic treatment is attempted. The emotional and physical strain necessary for the patient to control his actions, the almost constant thought and worry about the teeth, added to, in many cases, by loss of sleep and improper nourishment because of aching teeth, are enough to undermine the nervous reserve of a patient relatively strong. It should always be remembered that neurasthenia is induced by a strain relatively great, that is, greater than the individual's ability to bear.

In dental practice neurasthenia is often the cause of mistaken diagnoses and useless treatment. Among the earlier symptoms in the mouth is a disturbance of the secretions. The gums sometimes become hypersensitive to touch in certain areas without any sign of anatomic degeneracy. More rarely is encountered an extreme sensitiveness to heat and cold or acids. Soreness of the throat and disorders of the muscles of mastication and deglutition, without inflammatory process, are also sometimes encountered.

Cases from Practice.—The following cases have come under my observation and indicate some of the vagaries of neurasthenia in dental practice: *Case 1.*—Married woman, aged 45, had right upper first molar treated for many months. Each time the tooth was sealed up a severe neuralgia affected the whole side of the face. Exploration after extraction showed that two roots had penetrated the floor of the antrum, leaving free openings. Douching the antrum failed to reveal the presence of pus, so the wound was allowed to close. Pain ceased and the patient left for a vacation in the country. When she returned to the city about three months later she came to me complaining of pain under the eye, dripping into the throat and other diagnostic signs of antral empyema. The patient insisted upon the extraction of the right upper second bicupid tooth, which felt elongated, and after consultation with her dentist I complied with her request, and found that it also extended into the antrum, which was thoroughly washed as before without disclosing the presence of pus. The

wound was kept open for frequent examination for about two weeks, but as no pus was discovered and the pains ceased it was allowed to close. After an interval of about two years the patient returned, having marked symptoms of engorgement of the antrum. A radical operation was advised but declined by the patient until she could consult her physician, who is a prominent rhinologist. He called on me later and recommended deferring the operation, as he believed the symptoms to be entirely neurasthenic and was treating the case accordingly. The improvement of the patient under his care to the present time has justified his diagnosis.

Case 2.—Married woman, aged 27, having recently experienced a laborious confinement which left her in enervated condition, presented, asserting that she had extreme pain in her teeth upon taking hot or cold substances into the mouth. Investigation revealed a beautiful set of teeth in perfect condition. There were no cavities nor any sign of erosion, abrasion or enamel softening. The patient was frankly told the condition of her teeth, and was, I imagine, rather disgusted with my ability as a diagnostician. Afterward I had the opportunity on several occasions of watching her eat and she often had to leave the table because of the excruciating pain in her teeth. About a year later, upon my questioning her concerning the condition of her teeth, she informed me that they were "still sore," evidently having forgotten that the cause of her seeking my services was that her teeth were susceptible to thermal changes.

Case 3.—Unmarried woman, age about 30, had been in the hands of unscrupulous dentists, who had left her mouth in a deplorable condition as the result of unsightly and unsanitary bridge operations, fillings over improperly treated teeth, etc. It was necessary for me to prepare a number of exquisitely sensitive cavities, devitalize some pulps (which I cannot always do without pain) and arrange her appointments very close together. The effect of this strain, coupled with worry over the outcome of the treatments and because of financial difficulties, was that the patient developed a decided case of dental neurasthenia. At almost every sitting she would report discomfort in some different region of the mouth. Healthy teeth and normal gums became the seat of severe pain. Devitalized teeth reacted to cold and vital teeth were

sore to percussion. She came to be suspicious of me and discontented with my methods of treatment, and it was with the greatest difficulty that I diagnosed and treated the simplest affections. Whenever it was possible, I gave her long periods of rest from dental work, after which she returned with restored vitality and the obscure pains entirely quiescent.

Case 4.—Married woman, age 28, developed neurasthenia after childbirth, followed by subsequent abdominal operation. Her eyes were first affected and later her teeth ached upon the slightest depressing emotion, but the discomfort would entirely pass away with the approach of pleasant experiences. There were only two small cavities in her teeth, neither of which was sensitive, but while filling them the patient experienced pain in other teeth of the opposite denture.

Additional cases have been reported to me by physicians, among which were two of male patients who suffered persistent pain at the base of the tongue. In one the moral effect of an actual cautery of one or two slightly enlarged circumvalate papillæ was sufficient to accomplish a recovery. In the other the pain was coincident with loss of work and financial difficulties and disappeared when the patient received an appointment in the government service. In another interesting case a man was affected with a dryness of the throat. He would sip water almost constantly without obtaining relief, and had difficulty in swallowing solid food. There was no apparent diminution in the salivary secretions, and for moral effect the tongue was slightly cauterized, which seemed to give the patient relief.

Treatment.—The treatment of neurasthenia should properly be relegated to the neuropathic specialist and not attempted by the dentist. When neurasthenics come under our professional care, however, we may do much to aid the treatment by moral support. Frequent examinations and assurances of lack of objective tissue changes have a quieting and beneficial effect. Neurasthenia requires sympathetic and tactful management. When hypochondriasis is a prominent symptom an elevating mental influence may alone be sufficient to effect a cure. Strychnin and other tonics, outdoor life and change of occupation also produce improvement. Dr. S. Weir Mitchell and other neurologists have devised a sys-

tem of absolute rest, associated with forced feeding and massage, which is wonderful in its results.

Members of the dental profession are particularly liable to neurasthenia. The dry and often impure air of the operating room in connection with irregular and hastily eaten meals, and the expenditure of nervous energy necessary to conduct an active practice, must all be offset with an adequate amount of outdoor exercise and social diversions in order that this danger may be avoided.

In conclusion let me acknowledge my indebtedness to the writings of Beard, Ranney, Strumpell, Dercum, Jelliffe, Whistler and others, from whom I have freely quoted. In selecting material for this paper I have been guided by a personal knowledge of the condition, gained through living for four years with a widely known neurasthenic.—*Items of Interest.*

CONVENIENT ARRANGEMENT OF OFFICE EQUIPMENT. By Harold Clark, D.D.S., Toronto, Canada. The business man's success, however high his business principles, is measured by the profits, dividends, or, in plain words, by the money made. The professional man's success, in the final analysis, is indicated by the character of his professional achievements. The money made may vary with these achievements or it may not. While professional achievement should be a dentist's first ambition, he should not be careless about his earning power; it should claim, at least, secondary attention. And too much importance can hardly be attached to the consideration of anything that will tend to make every hour of work as efficient as possible. Perhaps no profession depends so much upon the strict economy of the very minutes that make our hours of labor; and to this end a well-equipped and conveniently arranged office is most important. I have been asked to discuss this subject from the standpoint of economics, and naturally my remarks will be pretty much a description of my own office and its equipment, and I shall be led to make frequent use of the first personal pronoun.

First of all, I would suggest a detail as to the division of our office space. If at all possible, have a small room, even if it be no larger than four by six, that opens by one door into the oper-

ating room and by another into the waiting room, or, better, into the general corridor. This should be properly equipped with basin, mirror, dressing table, and such conveniences as are found in a dressing room. A hat and cloak tree in the operating room or waiting room will accommodate the wraps of the patient about to take the chair. As soon as the previous patient has gone, the assistant can remove these wraps to the little dressing room. When the operation is finished, the patient goes directly to the little dressing room. If the operation has disheveled the hair she is spared the embarrassment of facing strangers, or even friends, in the waiting room. Another value of this little room, and quite as important as the former, is the time saved by being able to bring the next patient to the chair without having to wait till the previous patient is ready to leave the office, or while she pursues a conversation you cannot terminate without seeming rude. When the office space does not permit of this room, as is the case in my own suite, a corner of the operating room may be provided with a basin and other equipment, and be closed off by portieres. In this way, the only delay necessary between patients is the time required for the operator to wash his hands.

Were I asked what I regarded as the most indispensable item of my equipment, I should unhesitatingly reply, "My office assistant." A practice must be very small indeed that cannot afford the magic touch of a woman's hand. A mere girl who has just left the public school can soon be trained to do a multitude of things that consume time, and still do them as well as the dentist; and if they are in the nature of housekeeping she will do them better. Only the dentist who employs one, and has had to do without her for a day or two, can know her value. In the arrangement of the operating room I have tried to have everything so placed that while my left hand is engaged at the patient's mouth my right hand may easily reach anything in my whole operating equipment. I have an operating cabinet, a prosthetic cabinet and a recording desk, and these naturally arrange themselves in the arc of a circle, any part of which is easily within the sweep of my right hand. My operating cabinet is one I designed for myself, the special feature of which is the large area afforded by the trays. I have seven trays, each of which may be drawn

clear of the body of the cabinet. They afford almost fourteen square feet of surface. More than one dentist who has seen the cabinet has objected to the depth of the trays from front to back. This objection is for me one of their main virtues. I can have two racks in each instrument tray. The one nearest me contains the instruments most commonly used, and the back or farther one contains those less frequently used. No matter how seldom required, the place of any instrument is familiar to the eye, and when needed I have it instantly, and don't have to hunt through several drawers and then ask the assistant if she remembers where it was put when last used. I have so much tray room that many things that are usually kept hidden away in drawers are ready to hand the instant I need them. Even the stock that is kept in drawers is contained in boxes with the covers removed, so that it is never necessary to take time and both hands in a hunt for something that is needed in a hurry. One tray is almost entirely devoted to all sorts of engine points. When we think of all the different forms and sizes of engine burs, and these multiplied by two for the right-angle and direct handpieces; all the sizes and shapes of stones, disks, reamers, etc., some used frequently, others rarely, one can realize the value of an arrangement whereby the instrument most rarely used can be had as quickly as any other. This tray in my cabinet looks like a forest of engine points, all laid out in straight rows; each form of point has a row for itself, with the largest on one end and graduating to the smallest on the other; the most frequently used at the front, the least frequent at the back. I have been in the offices of dentists of rare ability and with good practices who kept their engine points in two or three pill-boxes, and as each point was needed would hold the box in one hand and with the cotton pliers in the other sort the contents until the desired point came to the top; or, this failing, another hunt for a new point would be made in some drawer, or drawers, among the containers in which we buy the points from the dealer. I have a drawer with nothing else in it but several blocks drilled to contain all my stock of new burs, stones, etc. Each block contains one form of point, and all graduated as to size. The convenience of this is obvious. In another tray I have my excavators, chisels and other sharp edged instru-

ments. These are arranged on two racks, the rack nearest me containing those in most common use, and in a definite order—spoons before other excavators, large before small, curved before straight, etc. This enables my assistant to return each to an exact place after sterilizing. Another tray contains my pluggers and all instruments associated with gold fillings. Still another has plastic instruments and an assortment of miscellaneous long-handled instruments. As far as possible I use cone-socket handles, styles 10 and 10a. They are octagonal, and do not roll when laid down; not so bulky as to be clumsy, yet large enough to be under perfect control in delicate operations, such as in pyorrhœa treatments, etc. Instead of having my electro-pneumatic switchboard on the wall as is usual, I have it supported on one side of the cabinet, and the tubes, cables, etc., pass beneath the cabinet and are delivered on a board at the other side, so that when in use these cables and tubes are not in the way of the trays and drawers. Close beside my operating cabinet I have my prosthetic cabinet. Its general purpose is to minimize the trips to the laboratory. It is made so that one stands to work at it. It is equipped with everything necessary for small solderings, small plaster work, filing, grinding, waxing; in fact, a multitude of little operations that would otherwise have to be done in the laboratory. It contains a small plaster drawer, and everything necessary for the taking of impressions. It is equipped with an electric motor lathe carrying a universal chuck. With the touch of a button a drill or any instrument may be sharpened in a moment. An engine stone may be trued or cleaned when clogged with amalgam by revolving in the handpiece against the revolving stone of the lathe. A small office Bunsen burns all day, and is ready in an instant to heat an instrument, to soften gutta-percha, or wax or compound. The economic value of electric appliances is only appreciated by those who have used them. The electric annealer, especially with a rheostat to regulate the heat, produces a quality and uniformity of gold that is only realized when some mishap compels one to resort to some other method of annealing. With a properly constructed water heater the most sensitive cavity may be syringed without the patient suffering in the least from thermal shock. There are many de-

vices for generating a stream of hot or warm air, but I know of none which admits of such delicate heat regulation as an electric resistance under rheostatic control.

Such instruments as cotton pliers, mirrors, explorers, etc., I keep in duplicate, so that while one set is being sterilized the next operation may proceed without waiting. Another small but important point that I know is often overlooked by many who try to observe aseptic precautions—I refer to the waste cotton holder. Could we imagine any better way to transfer infection from one patient to another than to rub the points of our cotton pliers, broaches and other instruments in the accumulated and assorted filth about the mouth of a waste cotton holder? I keep these in duplicate, and one is removed with the instruments after each operation, and is cleaned and sterilized.

In arranging one's medicaments the exercise of a little care and intelligence will accomplish considerable. Select those agents in most common use and have them in the most convenient place. This place for me is in the lowest tray of my operating cabinet. I have two sets of medicament bottles screwed to the sides of the lowest tray. With one hand I can remove cover, dip cotton into the medicine, and replace cover with no needless waste of time. Iodin and acids must not be kept in the cabinet, as the steel instruments would be rusted by their fumes. As far as possible, drugs should be contained in glass-stoppered bottles. The wide-necked variety is usually to be preferred, as we so frequently desire to dip in an instrument or syringe point. A stopper that may be inverted when removed from the bottle has an advantage worth considering. Every care should be taken to minimize the characteristic odors of the dental office. A large contributing cause of these odors is the spot that is left every time a stopper is laid wet end down from a bottle containing an essential oil or other aromatic. A little care, with properly formed stoppers, will avoid much of this trouble. One should have a medicine shelf in his laboratory, or some room other than his operating room. On that shelf should be kept large bottles that contain stock quantities of various drugs, such as alcohol, ether, chloroform, phenol, etc., from which smaller quantities are transferred from time to time to the more convenient

sized bottles of the operating room; also saturated solutions of such drugs as sodium bicarbonate, sodium dioxid, zinc sulphate, etc.; also discarded medicines, for new uses often arise for them. It is a good plan to take an hour once a month to have a sort of housecleaning through one's operating-room cabinets to remove discarded medicaments and other equipment. It is bound to have some demoralizing influence to have a lot of "dead wood" in one's outfit.

In my cabinet, in one place, and always in that place, I keep my restoratives: lavender salts, aromatic spirits of ammonia, liquor strychnia, amyl nitrite capsules, etc.

Various medicines are used in varying percentages. These agents I keep in full strength solutions. If the desired dilution of one of them be only a few drops for the immediate operation, I prepare it with a minim syringe on a glass slab. By counting the drops the combination or percentage solution is readily made. For larger quantities up to a drachm I use a minim graduate.—*Dominion Dental Journal.*

THE PHYSIOLOGIC ACTION OF SOME LOCAL AND GENERAL ANESTHETICS WITH A COMPARISON OF THEIR PRACTICAL VALUE. By Henry H. Boom, M.D., Camden, N. J. From the advent of surgery the humane operator has sought for means to render his patient non-resistant to necessary manipulation, and to relieve, as fully as possible, the pain occasioned by his treatment. In the records of early and crude surgical work we find that a number of expedients were used for this twofold purpose.

Bleeding the patient until, from loss of blood, fainting occurred was a highly commended procedure preceding the reduction of a dislocation.

A number of drugs were employed, often in poisonous dose, to secure a condition of the patient favorable for the surgeon's work.

Even within the last half century the unfortunate patient was first made gloriously drunk, and then positively poisoned with alcoholics, to secure in him a passive or relaxed muscular condition, with an accompanying insensibility to pain.

All such measures were, of course, followed by effects which

frequently made the work of the surgeon more harmful than beneficial to the patient.

The history of anesthetics carries us back to the latter part of the eighteenth century, when, in 1776, the Rev. Joseph Priestley of Birmingham, England, first prepared nitrous oxid gas and described some of its properties, and in 1798 Sir Humphrey Davy, then twenty-two years of age, prepared and inhaled nitrous oxid gas to lessen the pain accompanying the eruption of a third molar.

In 1842 Dr. Crawford W. Long of Georgia used ether by inhalation for producing anesthesia for surgical operation. On December 9, 1844, at Hartford, Conn., a popular lecturer, Dr. Colton, gave a lecture upon the chemistry of nitrous oxid and other gases, having among his audience two young dentists of that city, Horace Wells and John Riggs. Several of the audience were invited by the lecturer to inhale the gas, and one, a young man, received a severe injury while recovering from the anesthetic, yet suffered no pain from his mishap, which so impressed Wells that on the following day he, accompanied by his friend, visited Dr. Colton, inhaled the gas, and while unconscious had a molar painlessly extracted. In 1846 Dr. W. T. G. Morton, a dentist, used ether for dental extractions and major operations. Sir James Young Simpson used chloroform in 1847 for anesthetic purposes.

The further history of anesthetics, local as well as general, is interesting, but hardly in place in a paper of this character.

An anesthetic might be defined as an agent which, without impairing the performance of the vital functions of circulation and respiration, produces absolute unconsciousness with insensibility to pain, loss of power over the voluntary muscles, and diminution of reflex excitability.

It is obvious that the agents grouped as local anesthetics would be better named as analgesics or agents for the relief of pain.

Local anesthesia, over restricted areas, may be brought about by, first, the application of intense cold, usually through the rapid evaporation of volatile substances applied to the part; second, the local application, or injection, of drugs. The advantages of local anesthesia over general anesthesia are summarized by Dr. Thomas D. Luke in his recent work, "Anesthesia in Dental Surgery," as:

1. The lower rate of mortality.
2. There is no need for assistants (or witnesses in the case of

female patients), as, there being no period of excitement or struggling, the patient need not be held.

3. The analgesia lasts long enough to prevent the patient feeling the afterpain of the extraction.

4. No apparatus of a complicated character is required.

Refrigerating agents used to produce local anesthesia include methyl chlorid, ethyl chlorid and various proprietary preparations, as anestile (Bengue), coryl, etc., containing varying proportions of the methyl and ethyl chlorids.

Methyl chlorid is retained in liquid form only when inclosed in strong metal bottles. When it is to be used a small quantity of it is mixed with ether and applied by a cotton tampon, with a wooden handle, to the gum for from one to two minutes, when, on its removal, a white spot will be seen upon the mucous membrane and the gum will be insensitive.

A spray of methyl chlorid upon the gum occasions so marked a lowering of temperature—58 to 70 degrees Fahrenheit—that it is unsafe, as it may produce a marked disorganization of the tissue, even to the formation of a complete eschar.

The addition of ether lessens its too great refrigerating effect, but at the best it does not prove so efficient to the dentist as the ethyl compound.

Ethyl chlorid is usually sold in glass cylinders holding one to two ounces of this very volatile liquid. These containers are often made of metal. They terminate at each end in capillary tubes, the one used as the exit tube having a very small opening.

In using ethyl chlorid the surface of the gums is dried with cotton and the fauces are protected with cotton, when a spray from the capillary opening of the tube is directed upon the gums, holding the tube twelve inches from the face, until a white patch appearing shows the accomplishment of the freezing. The use of the agent now stopped, the operator waits until the natural color is regained before extraction.

Ethyl chlorid is useful when a number of loose and fragmentary roots are to be removed.

Refrigerating agents are not to be employed:

1. When the patient can only breathe with difficulty through the nose.

2. When the patient is a young child or is nervous and timid.

3. If the tooth to be removed, or one close by, is sensitive to cold.
4. When the pain produced by the extraction may last a long time, as in acute periodontitis, an extensive extraction, the removal of a large molar with separate roots.
5. When the tooth to be removed is a second or third molar.
6. Freezing agents are especially contraindicated for the extraction of the lower molars, more particularly when the patient has a tendency to the excessive secretion of saliva.
7. Freezing methods are inadmissible when the actual cautery is to be used.

In some instances it may be advantageous to combine the use of refrigerating methods with the employment of cocaine or other drugs.

The drugs employed locally for relief of the pain of extraction include cocaine, eucain, tropa-cocain and many patented artificial alkaloids, as stovain, holocain, nirvanin, anesthesin, alypin, subcutin, acoin, etc. With most of these adrenalin may be combined.

Cocaine as cocaine hydrochlorid has unquestionably the largest use for allaying pain of extraction of any of these agents. This, and allied substances, when in solution, readily and rapidly diffuse through mucous surfaces, upon which they are applied, so, according to Horatio C. Wood, "it is not safe to put upon mucous membranes quantities which if given hypodermically would be dangerous, so that not more than three-quarters of a grain should be used locally."

Potter states that in general action cocaine and its salts very closely resemble atropin; its symptoms almost parallel those of spartein; it is very nearly a complete antagonist to morphin, especially in the second and third toxic stages of the latter. Hare tells us that loss of speech, blindness, nausea, vomiting, syncope, unconsciousness have followed the local, as well as the internal, administration of cocaine. He also makes the statement that of two hundred and fifty cases of accidental poisoning from cocaine but thirteen proved fatal.

In the last edition of his work on therapeutics Prof. H. C. Wood gives the following summary of the physiologic action of cocaine:

"It is a cerebral stimulant producing peculiar mental excitement, ending, after a toxic dose, in narcosis, with epileptiform convulsions probably of centric origin.

"In the poisoning there is at first increased reflex activity, fol-

lowed by paralysis of voluntary motion and of reflex activity, which are chiefly due to a direct action upon the spinal cord, the sensory side of the cord being probably more sensitive to the drug than the motor side.

"Toxic doses depress and finally paralyze the sensory nerves, and, in a much less degree, the motor nerves.

"Cocain in moderate dose is a mild stimulant, in overdose a depressant to the circulation, the primary rise being chiefly due to the narrowing of the blood paths by stimulation of the vasomotor centers.

"Upon the part itself the moderate dose of the alkaloid acts as a stimulant, increasing to a slight extent the amount of force put forth by the heart.

"There is also reason for believing that cocaine exerts a direct influence upon the coats of the blood vessels, which is of so feeble a character as to be of practical importance only in the local use of the remedy.

"The fall of blood pressure produced by the toxic dose of cocaine appears to be due to a direct depression of the heart itself, aided by a widening out of the blood paths, probably through paralysis of the vasomotor centers.

"Upon striated muscle cocaine appears to have a peculiar though very feeble action.

"It has no definite influence upon the amount of urine secreted.

"On the eye it acts energetically as a mydriatic.

"It is a powerful stimulant to the respiratory centers, increasing the rapidity and fulness of respirations; but if the dose is sufficiently large it, after a time, causes the respiration to become very shallow and finally it paralyzes the respiratory centers.

"Moderate doses are said to increase, large doses to paralyze peristalsis."

The dosage of cocaine is as follows:

Internally, one-sixth to one-half grain; locally, in from one to ten per cent solution, of which never more should be applied to mucous surfaces or injected than would represent one-half to three-quarters of a grain of the drug.

Toxic symptoms produced by cocaine are thus described by Thomas D. Luke: "Trembling in the limbs, especially the lower extremities; headache; vertigo, pallor; a cold, moist skin; feeble

rapid pulse, which in grave cases becomes imperceptible; slow, shallow respirations, incoherence of speech, nausea, vomiting, unconsciousness, tremors and other muscular spasms, epileptiform attacks, dilated and unequal pupils, and disturbances of the circulation, ending in dyspnea and death by asphyxia."

Prof. H. C. Wood groups the toxic symptoms in the following manner: "In the mildest cases of cocaine poisoning—great restlessness and nervous excitement with a condition of terror, pulse usually accelerated and respirations increased in frequency, with, perhaps, muscular twitchings or even slight convulsions.

"In severe cases—nausea, vomiting, rapid, almost imperceptible pulse, marked perspiration, collapse, with or without loss of consciousness.

"Other cases have presented a pulse slow and feeble, cyanosis, respirations slow, almost arrested, pupils are usually dilated, but exceptions are noted.

"After very large doses of cocaine, convulsions are usual, often violent, with pronounced opisthotonus; mania may occur, with hallucinations. Treatment of poisoning from cocaine must be conducted along one of two almost diametrically opposed lines, according to whether the symptoms presented be those traceable to cardiac or respiratory failure, or whether they be largely those referable to the nervous system."

The dentist will find the majority of such cases coming under his attention to be of the syncopal character, and he will treat them by placing the patient in a supine position with the head low, giving a hypodermic injection of digitalin (1-64 to 1-32 of a grain), or of strophanthus (10 minimis of the tincture), and at the same time administer aromatic spirits of ammonia or whiskey by the mouth. The patient should be kept warm, and, such means failing to overcome the condition, the intravenous injection of ammonia and of saline solution and the employment of faradism will be properly conducted by a competent medical confrere.

The treatment of cocaine poisoning in which the nervous symptoms predominate is conducted along the lines mapped out in cases of strychnia poisoning: Chloroform is administered by inhalation until a partial degree of anesthesia is secured; for the relief of convulsions chloral is administered cautiously by the mouth or in enema; potas-

sium bromid may be employed in large doses and warm baths may prove of service.

At the fourth International Congress of Dental Surgery held at St. Louis, Dr. Sauvez of Paris made the positive statement that "if more than a cubic centimeter (16 minims) of a one per cent solution of cocaine is used the patient should be placed in the supine position, and should remain resting for a considerable time after the operation is completed."

Adrenalin, as adrenalin chlorid, is sold in solution of a strength of one part in the thousand.

This substance is a remarkable vasomotor constrictor, and when its 1-to-1,000 solution is applied to a part admits of operation upon that part unattended by loss of blood.

The addition of adrenalin to cocaine solution exhibits the following advantages: It renders the region to be anesthetized bloodless; it increases the local action of cocaine, while lessening its constitutional action; analgesia is practical in soft and inflamed tissues, and is more pronounced and lasting in healthy ones; no bleeding follows the extraction of the tooth, no syncopal or cerebral symptoms occur as sequelæ (Battier and De Nevez). The composition of this combined solution for dental use may be:

One part of cocaine hydrochlorid.

Five parts of the 1-to-1,000 solution of adrenalin.

With water to make 100 parts.

Eucain as a local analgesic has to a considerable extent replaced cocaine.

Eucain is an artificial alkaloid and occurs in two modifications, the alpha and beta eucain. The latter is the preferable, being less of an irritant than the alpha eucain.

The chief advantages claimed for eucain are tabulated by Luke ("Anesthesia in Dental Surgery") as follows:

1. It has only one-fourth the toxicity of cocaine.
2. Its exhibition is followed by no unpleasant nor dangerous after effect.
3. Its action is more constant and lasting than that of cocaine.
4. It does not undergo decomposition on boiling, and so can be rendered permanently sterile in solution.
5. Its price is but half that of cocaine.

It is, however, less soluble than cocaine, more irritating, slower in

action, so that after its injection for an extraction the operator must wait at least ten minutes.

An addition of adrenalin to eucain solution largely overcomes its irritant action.

Its dose, 15 to 20 minimis of a two per cent solution, is sufficient for the extraction of a single tooth.

Parke, Davis & Co.'s "eudrenin" is a sterilized solution of B-eucain with adrenalin. Wohlgemuth, Pouchet and Sauvez each state that they have found eucain as toxic as cocaine and less efficient. Reclus has used eucain on over four thousand occasions without bad effect.

A formula of eucain solution of frequent use is:

B-eucain hydrochlorid 3.5 grammes

Natrium chlorid 7.0 grammes

Distilled water (boiling) . . . to make 500 cubic centimeters

Stovain is the trade mark of a synthetic derivation of the amino-alcohols. Potter states its toxicity to be but half of that of cocaine. It is not injured by boiling, but is destroyed by alkalies; it cannot be combined with adrenalin. Unlike cocaine, it can be used with some freedom while the patient is in a sitting position. It is employed in a three to four per cent solution in distilled water.

Tropacocain is said by Potter to be less toxic than cocaine. Sauvez declares it as toxic and less efficient than cocaine. Dorn, a German dental surgeon, reports its use in over three hundred cases with good results, and in no case with toxic symptoms. He uses it in three to four per cent solution, injecting from ten to thirty minimis in three to five punctures, in the direction of the roots of the teeth. The analgesia obtained lasts about ten minutes.

Anesthesin, the ethylester of paramido benzoic acid, insoluble in water, but soluble in alcohol, ether and oils, is less toxic than cocaine; analgesia from its use lasts longer.

Nirvanin, a patented coal tar derivative, has but one-tenth the toxicity of cocaine (Potter), can be sterilized by heat, is antiseptic, non-irritant, and is used in two to five per cent solution in water.

Ethyl chlorid, as a general anesthetic, has, within the last few years, been widely extolled as an efficient, safe anesthetic, whose effects, like those from nitrous oxid, are of but short duration.

In a study of its physiologic effects Professor Hare describes it as an agent producing, by an inhalation of from one to two drams,

an anesthesia lasting five to ten minutes. During the anesthesia the pupillary and corneal reflexes are not lost, muscular relaxation is absent. The after effects are slight, vomiting occurring in a few instances. A study of one thousand six hundred administrations of the agent by Seitz shows but one death, an individual suffering from disease of the coronary arteries.

Dr. H. C. Wood mentions a collection of eleven thousand two hundred and seven cases by Ware showing but one death traceable to this agent.

Professor Potter describes ethyl chlorid as rapid, efficient and safe for short operations, if used with exclusion of air. The anesthesia is produced in from one to two minutes, when the inhalation is discontinued; the risks are slight, even in patients with unsound heart or lungs; it does not produce muscular relaxation.

Its mortality is one in fifteen thousand cases. It may give rise to erotic sensations resulting in false accusations, and should not be used for women except in the presence of a witness.

We might continue to cite laudatory notices of this comparatively new anesthetic, but it is time that we examined the reverse of this pleasing picture, when we find in a recent publication (Dr. Thomas D. Luke's "Guide to Anesthetics," 1906) a list of twenty-four deaths ascribed to ethyl chlorid used by inhalation. Eight of these deaths occurred during dental operations.

Those who use ethyl chlorid insist upon the necessity of excluding air during the administration. It is not as safe as nitrous oxid, but when used in proper amount and its length of administration carefully gauged it is probably far safer as an anesthetic than ether or chloroform.—*Items of Interest.*

SOME ABSCESESSES OF DENTAL ORIGIN WHICH OPEN OUTSIDE THE MOUTH. By M. H. Cryer, M.D., D.D.S., Philadelphia, Pa. So much has been written about dento-alveolar abscesses lately that there remains but little to add at the present time. One class, however, of abscesses associated with the teeth has received scarcely any attention—namely, those which do not "break" or open either into the vestibule of the mouth or into the mouth itself. There are many abscesses of dental origin that break or open upon the surface of the face or neck, and there are also those that break or open into the pneumatic cavities of

the face. It is of the latter cases—those in which the upper teeth alone are involved—that I wish now to speak.

The pus from an abscess associated with any of the incisors that does not pass directly into the vestibule of the mouth occasionally passes backward between the two plates of bone forming the roof of the mouth and the floor of the nose, and may then point or open into the mouth or nasal chamber, or even into the maxillary sinus. Under this head I reported a very interesting case in the Section on Laryngology and Otology of the American Medical Association last June:

A patient of Dr. Cupit's of Philadelphia had been suffering from severe pain throughout the right side of the face, but especially in the upper part of the nasal and frontal regions. An X-ray examination was made by Dr. Pfahler, which demonstrated that artificial crowns had been placed on the two incisors on that side, with pins passing into the root-canals. The radiograph also showed that a great change in the structure of the cancellated tissue and upper plate of bone had taken place over the region of the incisors, especially over the lateral incisors; the characteristics of the cancellated tissue had been lost, showing that destruction of the bony tissue had occurred and the apex of the lateral incisor was in what might be termed a pus chamber. The upper plate of bone had been pushed upward until it came in contact with the inferior turbinated bone, and a passageway was established between the two plates of bone which form the septum between the nasal chamber and the maxillary sinus. This passageway had its outlet into the nose near the ostium maxillare. The radiographs also showed a thick or cloudy condition of the fluid in the maxillary and frontal sinuses, thus giving conclusive evidence that the infection had passed from the incisors to the maxillary sinus, thence through the passageway to the upper part of the nasal chamber and the frontal sinus.

The general anatomic position of the root of the cuspids indicates that abscesses associated with it seldom point and open anywhere but into the vestibule of the mouth, but there are exceptions when the apex is deeply located, and there have been cases where an abscess has pointed through the outer wall of the nasal chamber, and again where it has discharged into the maxillary

sinus. Abscesses from the bicuspid teeth occasionally open into the maxillary sinus, and sometimes into the nasal chamber. The latter is what usually occurs when the nasal chamber extends outward over the roots of the molars to the external wall of the maxilla.

Some abscesses that open into the maxillary sinus may exist for years without being detected, the pus or infectious matter being carried off with the secretions of the sinus. An abscess of this kind often becomes a source of great annoyance to the patient by causing the breath to assume a foul odor. The infection may extend through the ostium maxillare, the hiatus semilunaris, and the ostium frontalis, infecting all these regions, and even affecting the membranes of the brain by penetrating the bony wall of the sinus. There are cases where the bony septum is incomplete, when the brain may extend into the sinus, or there may be only a membranous division between the brain-case and the sinus. The cranium may also be entered through the cribriform plate of the ethmoid by the passage of the infection from the upper portion of the nasal fossa. The results of infection of the cerebral membranes may be very serious. I could report several cases of this character.

While infection from the source under consideration may extend to the regions spoken of, it can also pass into the alimentary canal and the lungs, thus causing great damage. Usually, however, the alimentary canal is immune to such invasion, but the constant contact of infectious matter will eventually cause the infection to become implanted in the walls of the stomach or other regions of the alimentary canal. This is more liable to take place after a period of illness, especially in the case of diseases in which the vital resistance of the alimentary canal is lowered.

The early diagnosis of abscesses associated with the upper teeth which have discharged into the nasal chamber or maxillary sinus is often difficult. Some years ago Dr. Kirk called attention to cases of threatened abscesses of the upper posterior teeth which cause great pain and then during treatment suddenly subside, from which fact the practitioner is apt to assume that a cure has been effected, when in reality the relief is due to the discharge of pus into the sinus, as already stated. The difficulty of diagnosis may be due to the fact that the teeth do not emit the typical percussion

sound, and a suspected devitalized tooth may show no evidence of such a condition even if the filling be removed from the canals. When a complete history of the teeth is kept by a competent and exacting dentist it is of great value. Very few dentists, however, keep the required history, and consequently the practitioner who makes it part of his special work to search for such teeth usually has to get the necessary information from other sources. Too much stress cannot be laid upon the importance of keeping the full clinical record of every tooth from which infection of the air-spaces of the bony structures of the face may arise.

The X-ray examinations have become useful in diagnosis, especially when a full-sized plate large enough to take in the whole face is used. These examinations should be made both laterally and anteroposteriorly in order to obtain a correct idea of the parts involved. The anteroposterior examination is made by placing the plate against the face, with the tube a little below the occiput. The two pictures will usually demonstrate the approximal relation of the teeth to the maxillary sinus, and will also indicate pathologic conditions in this or other regions of the internal portion of the face.

If the diagnosis be once established that an abscess associated with a tooth has opened into the nasal chamber or maxillary sinus, I believe it good surgery to extract that tooth, and give good drainage to whatever parts have become infected.

I now wish to speak of some of the factors that make it necessary to vary the treatment of abscesses associated with the teeth. I do not now refer particularly to the class which I have just outlined, but to dento-alveolar abscesses in general.

Abscesses are apt to occur at any period of life, even in children before the eruption of the teeth. The nature of anatomic and physiologic actions is constantly undergoing changes throughout the entire periods of life. If these facts be accepted, then the treatment of pathologic conditions at different periods of life cannot be of a uniform character.

Again, the various teeth differ from each other in anatomic structure. They may vary in function, in their relative position in the jaws, and in their relation to associated structures of the jaws—such as the nasal chamber, maxillary sinus, floor of the

mouth, and upper portion of the neck. The roots likewise vary in appearance and in anatomic characteristics and position, some roots being covered only by a thin alveolar plate, others being deeply embedded in the alveolus; again, some are in close relation to the nasal chamber, others to the maxillary sinus, and others still to the inferior dental nerves and vessels, and these relations differ in each individual, no two cases being alike. Even in the same individual the anatomic relations will differ on the two sides. In the treatment of pathologic conditions these anatomic variations must be considered. The position of the opening of an abscess associated with the teeth varies greatly. It may, as it commonly does, break into the vestibule of the mouth. Those of the mandible may discharge externally along any portion of the body of the mandible, or even down in the neck, or into the pharynx. Those of the maxilla may break into the nasal chamber, maxillary sinus, or even into the zygomatic fossa. So they require treatment according to circumstances, as no rule can be established that would cover all cases. Another great factor, and perhaps the most important of all, is the personal equation of the patient. In a patient of high resistive power toward infection, the treatment of abscesses must necessarily be quite different from that of one in whom the resistive power is almost lacking. While the healthy individual is practically immune to extensive invasions of the class of bacteria concerned in the causation of dento-alveolar suppurations, yet, on the other hand, every possible artificial aid must be brought to bear to prevent infection of any kind from occurring in patients whose vital tone is below normal.

It is for these reasons that no fixed rules can be established for the treatment of all cases of abscesses associated with the teeth. Even in the same individual at different times and under different circumstances the resistive and restorative power changes, and consequently the treatment must also vary.—*Dental Cosmos.*

ORAL PROPHYLAXIS, OR RUBBING, POLISHING AND WASHING THE SUPERFICIAL TISSUES OF THE MOUTH. By C. M. Wright, D.D.S., Cincinnati, Ohio. I should be willing, at this time, after several years' general use of the term "prophylaxis," to see the name drop into an "innocuous desuetude"

among dentists. It has lost its place and become simply a term for a modern idea of thoroughness, not, as the term implies, along the line of prevention, but along the line of curative dentistry or surgical therapeutics.

To me the distinct feature of the two departments, viz., to prevent, or, to cure, are very clear; and when speakers, writers and editors of dental journals use such expressions as "prophylaxis treatment," I must confess that I feel a little dizzy. When they go on to describe "prophylaxis treatment" for long-standing pathologic conditions, like chronic suppurative inflammations, or any other persisting disease of the soft or hard tissues of the oral cavity, I am convinced that either I have never had a clear conception of the terms "prophylactic" and "prophylaxis," or that these names have lost their places in the scramble, and need new definitions in the medical lexicon. Therefore I should be glad, if we could go back to the plain English term—prevent, or preventive. Preventive dentistry, then, would be a dentistry for the purpose of preventing diseases of the oral cavity, for the prevention of caries and erosions of the teeth, and for the prevention of diseases of the gums or tissues surrounding and connected with the roots of the teeth like interstitial gingivitis (Talbot) and the pyorrheal and necrobiotic stages of this bunch of inflammatory phenomena, as well as of atrophies and other degenerative tendencies of the gums.

I should be glad to have it clearly understood that the new era of so-called oral prophylaxis means that we, as dentists, now recognize the necessity for special and intelligently applied measures by a trained hand upon teeth and gums, while the teeth and gums are normal and healthy, to keep them so and to prevent, to hinder, to come before the attacks or encroachments of the enemies which are lying in wait to produce caries and interstitial gingivitis. Our entire attention up to the present has been centered on the enemy after he has gained a foothold and commenced his destructive work. We are familiar with his methods and the results. We have studied dental caries and interstitial gingivitis and have devised ingenious and fairly successful methods by fillings and by general surgery of arresting the attacks and partially restoring the damaged tissues.

Prophylaxis must come before these attacks, as a barricade, and also after the return to nearly normal conditions. It must come to hinder a recurrence or another attack.

These preventive measures are, to my mind, included under three heads: Rubbing (or massage), polishing and washing. After a while prevention may include another department—that of systemic hygiene, with food, water, air and exercise as factors. At present we must depend upon rubbing, polishing and washing, or local measures. This is not dental surgery. It is not the duty of the dental surgeon to perform this sort of work, but it is his bounden duty, his special province, to see that it shall be done. This is the new era in dentistry; that the dentist, knowing, as he now does, the vital importance of this sort of care of the mouth and teeth, shall provide means for its accomplishment for his patients and mankind.

When the dental surgeon cures caries by his operative measures of filling and cures gingivitis by his surgery on tartars and gum tissues and gingival pocket and corrects malocclusions and the results of developmental errors in the maxillæ by ingenious orthopedic appliances, and restores damaged parts and lost parts of an organ by crowns, bridges and plates—when, in other words, by his marvelous skill in dentistry proper (which has developed so rapidly on account of his earnest devotion to this part of his duty), the dentist restores the physiologic functions of mastication and respiration to their normal places and changes a condition of oral disease to one of health, and by these operations preserves the health of man, he is practicing preventive medicine and not preventive dentistry.

His object is, by the surgical and mechanical means of thorough dentistry, to put in order organs which are valuable aids in the digestive processes and in the internal respiratory metabolism of every cell in the body.

The dentist knows as well as Osler that, in the way of physiologic living, men should be "chewers and not bolters" of their food.

He knows that Cannon, and Chittenden, and Sir Michael Foster, and the layman Fletcher have proven by their carefully planned and ingenious experiments that the thorough and prolonged mastication and insalivation of foodstuffs are of infinite value to the general health of man; that diseases like pyloric cancer, intestinal ulcerations and digestive and absorptive disturbances as in the glands and cells of the alimentary canal may be prevented by thorough grinding and softening of foodstuffs by sound and well-arranged teeth and

healthy oral tissues. It is the business of dentists to put mouths into this condition.

The dentist knows as well as Hunter, the author of "Oral Sepsis as a Cause of Disease," that danger lies in diseases of the mouth—to the individual himself through bacterial and auto-infectious causes and to those with whom he may come in contact, or "within twenty-two feet of." Remote diseases, like pin carditis, neuritis, septicemia, etc., have resulted from a primary oral sepsis.

Through recent labors of sister specialists—the rhinologist and laryngologist—the dentist has learned, too, of the intimate relationship that exists between abnormally developed maxillæ—the correction of which occupies so much time and skill on his part—and adenoid growths, hypertrophied tonsils and deflected nasal septæ.

It is strange, but I believe you will find it true, that the highest and broadest appreciation of our really invaluable services to mankind has come from the recognized authorities among medical men and medical specialists. They have accorded to us a position of usefulness as practitioners of a branch of medical practice which we, as a profession, have hardly dared to claim. As a profession we have, I am sure, been extremely modest in our claims.

It is only after a wider and deeper study of physiology as a branch of biology, and after deep meditation on the special and far-reaching complications involved in questions of function of metabolism, and of etiology, that dentists themselves have come to respect their own profession as one truly scientific and worthy of the life devotion of the most scholarly student of science. This is one reason why I do not want the dentist to spend his kinetic energy in rubbing or massaging—with or without a cot on his finger—the healthier gums of his patients, or in polishing with sticks and pumice the surfaces of healthy teeth. It is beneath him so to waste his force, even if by study he may be fired with enthusiasm and have a vivid picture in his mind of the effect on the underlying connective tissue cells and their intercellular fibers, on the epithelial and glandular cells, on the motion of the blood in the arterioles and capillaries, on the exudates from these capillaries, on the afferent and efferent nerve impulses waked up in the neurons, of the changes in lymph and lymphatics and the metabolism of the cells of all the tissues under the finger as he rubs, and rubs, and rubs the gums.

I am a firm believer in the benefits to these special oral tissues of

systematic and scientifically directed massage. I cannot say too much in favor of this operation.

When we remember the histologic structure of these oral tissues and consider the transitory character and susceptibility to degenerative changes (Talbot), I know of no better preventive measure than properly applied stimulation of the gums by massage under a trained hand. Polishing the surfaces of the teeth a la Dr. D. D. Smith is another important measure in preventive dentistry.

The use of scientifically selected mouth-washes (Dr. George W. Cook) and the application of silver nitrate solution to the solid tissue of the teeth (Dr. L. C. Bryan) are the other prophylactic measures with which we are becoming familiar.

These three operations, rubbing, polishing and washing, are fundamentals in "preventive dentistry." We all believe in them. We all know that each of us would be better off dentally and that all people, school children, and young and old, male and female, would be vastly benefited if each would, or could, have these operations skilfully performed at least every week, aside from his own daily efforts at cleanliness.

And yet, I say, this is not dental surgery. Only a few men, one here and one there, are willing to do this all-important work. I would not have them do it. This is why I have urged the colleges to furnish facilities for the training of a class of women who will do this for us while we devote ourselves to perfecting the preventive medicine part of our specialty, as in orthodontia, in surgery, and in our so-called operative and prosthetic or mechanical dentistry. In these departments we restore diseased tissue to health and replace lost parts of an important organ and correct surgically and mechanically the results of developmental errors as shown in irregularities, narrow arches and malocclusions of the teeth.

With this clear idea of the definite distinction between these departments, am I not right in the claim that there is needed a class of dental workers—call them what you will, dental assistants, dental nurses, denticures or what not—who will attend to healthy mouths by daintily polishing the teeth after the most approved manner, and thoroughly massaging the gums, and with compressed air force spray, cleansing and stimulating mouth-washes into crevices between the teeth and all over the mucous membranes of the oral cavity? This to be done very frequently, according to the taste of

the patrons and the order of the dentist and for the purpose of combating the known etiologic factors in the production of the disease with which we are so familiar, and keep the mouth healthy. This alone is true oral prophylaxis.—*Dental Summary.*

TREATMENT OF PYORRHEA. By Grace P. Rogers, D.D.S., Detroit, Mich. The subjects demanding the dentist's attention to-day are numerous and varied, but among them all there is not one of more vital importance than the treatment of pyorrhea. The object of our calling is to save the human teeth, and this purpose we cannot attain by the most perfect and artistic repairing of the crowns, without preserving the foundation upon which the crowns rest; for a perfect tooth is of no value to a patient if its attachment has been destroyed by disease.

By common usage the name "pyorrhea alveolaris" has come to designate a variety of conditions; however, the term is at fault, like many others of our profession. It might not be an unwise plan to have a committee appointed to revise the nomenclature of our profession. If this were done much of the time which is consumed in discussing the applicability of certain terms would be put to better use. The energy spent at dental meetings in the last twenty-five years discussing the use and abuse of the name pyorrhea, in suggesting substitutes for the same, and in arguing for a local or constitutional cause, would have been sufficient to cure many cases of the disease. So, for the sake of simplification, let it be understood that when in this article the term pyorrhea is used, I mean any condition which has resulted in the destruction of pericemental membrane. If any portion of the membrane is destroyed, a pocket is formed which, whether it contains pus or not, is of serious importance.

Beginning about the middle of the 19th century, with the work done by Dr. John M. Riggs, we find that there have always been, and still are, some few in the profession who have not only claimed to cure, but have cured many cases of pyorrhea. Why has the cure not been universal, and why do so many dentists say the disease is incurable, and give their patients no hope when they present themselves with diseased tissues and loose teeth? In spite of the fact that articles almost innumerable have been written upon this subject, and discussed pro and con, teeth are be-

ing lost from this malady in deplorably large numbers every day.

With a few notable exceptions, the members of our profession have been talking and not acting. The majority have not been able to recognize the disease in its incipient stage, consequently the trouble has progressed unmolested until some day a very loose tooth distresses a patient, and it is extracted by his dentist, who shakes his head and gives the patient the following consolation.

"You have pyorrhea alveolaris, and will have to lose all your teeth. It is caused by uric acid in the system, and there is no cure for it. You will be wearing plates before you are fifty years old." Perhaps another dentist would have advised treatment. This consisting in a careless scaling of the teeth with inefficient instruments and syringing out the pockets with an antiseptic. Such a treatment is better than none, but it will not *cure* the trouble. Some more progressive man would have treated the case in a more careful way until the mouth was put in a healthy condition. He would not have extracted the loose tooth until he had proven to his own satisfaction and to that of his patient, that to save it was impossible. Some teeth which seem hopelessly loose, often respond in a surprising manner to the proper treatment. Therefore, it is always best to at least try to save most teeth before using the last resort—*extraction*.

The moral effect this has upon the patient is most important, even though he should eventually lose the tooth. The *dentist himself puts the estimate of value upon his patient's teeth*, and if the extraction of a tooth means nothing to him, it will mean no more to the patient. If on the other hand he puts forth every effort to save a tooth, even though diseased and teaches his patient the importance of preserving the natural teeth, the latter will appreciate it and take better care of his remaining teeth. Ten years from now I believe that the dentist who extracts a tooth because it is affected with pyorrhea without first using every possible means of saving it, will be placed in the same class with the man who extracts a tooth because it is abscessed, without attempting to treat the abscess. There is no *short road* to success in the treatment of pyorrhea, such as the Alkalithia people and compounders of various mouth-washes would have us believe. We cannot sit

in the shade with Bill Nye and Dr. C. M. Wright any longer, but must get out in the sun and work.

While the profession is divided on this subject of the *cause* of the disease under consideration, nothing can be accomplished by more argument. There are a few things which we know *will* cause pyorrhea under proper conditions, and in so far as we know, we should act. It is for the men connected with our colleges, who have the time to prove, scientifically and practically, what influence constitutional disturbances have upon this trouble, and vice versa, and we can add to their efforts the results of our observations, but no man in general practice handles enough cases to make any decided statements either way. It means years of research work added to what has already been done before we can reach positive conclusions.

I believe that every dentist who has been successful in the local treatment of pyorrhea, has found that that treatment alone was sufficient. Dr. Riggs, who with the crude instruments he must have had to work with, cured 90 per cent. of all the cases coming under his care. Dr. D. D. Smith cures even a larger per cent. The works of these men stand out as beacon lights in the history of dentistry to encourage us in our attempts to treat pyorrhea. The cures made were complete, and their treatment entirely local. It is the belief of many dentists who are successful in the treatment of this malady, that if the gum tissue be kept absolutely free from local irritation, no condition of the system can bring about pyorrhea. This has been *proven* by the oral prophylaxis treatment as practiced by Dr. Smith and others. Those of us then who cannot cure pyorrhea can at least *prevent* it, and that then is our duty. However, until we are converted to the need of preventing the disease of the soft tissues of the mouth, or at least checking pyorrhea in its incipiency, we will have to treat this disease in its advanced stages, which is one of the most difficult operations a dentist has to perform.

While this disease may not be fully understood, yet a classification of the knowledge we have upon it may be of value. The causes of diseases are divided into:

- (a) Indirect or Predisposing.
- (b) Direct or Exciting.

PYORRHEA.

1. Predisposing Causes.—(A) Malocclusion.
 - (a) Misuse.
 - (b) Nonuse.
 - (c) Overuse.
 - (d) Making the prevention of accumulations difficult.
 - (e) Lack of development of tissues surrounding roots.

(B) Tooth Extraction:

 - (a) Making the prevention of accumulations difficult.
 - (b) Malocclusion.

(C) Low Vitality.

 - (a) Lessens resistance of soft tissues to irritants of any kind.
2. Direct Causes.—Caries.
 - (a) Mechanical—Bands, Crowns, Fillings, Plates, Tartar, Clamps, Ligatures.
 - (b) Chemical—Soft Deposits, Slippery Coating.
 - (c) Infectious—Bacteria.

I do not wish to leave the impression that this covers the etiology of pyorrhea, but rather to place before you conditions which are known to produce this disease, and to emphasize the importance of using the knowledge that we have. Let us suppose that we are not able to cure every case that comes to us, is it not worth our while to at least cure those we can?

After reading the literature on this subject and obtaining much information from the various schools in our country, I came to the conclusion that so far as the treatment of pyorrhea was concerned, "there is nothing new under the sun." I therefore shall not attempt to give you anything new, but merely to give the method of treatment in detail, and to lay emphasis upon certain parts of it which have, I believe, been considered unimportant by the men who have not been successful in the work. The general impression has been that the secret of success lay in a certain set of instruments, or in an especial medicament, while in fact the result of the work depends upon the thoroughness with which it is done. Every source of irritation must be removed, and if you can accomplish this with three or four instruments, each one

taken from a different set, the cure will be as complete as the one accomplished by another dentist who used the 27 instruments comprising the Younger set. The therapeutic remedy applied is merely an *aid* to nature in repair of tissue, and even the most efficient will accomplish little unless all irritants have been removed.

I shall divide the subject into: The curative and preventative phases.

In the treatment of a disease, if a physician does not know the cause, he treats the symptoms as they arise. If you can locate the direct cause of the disturbance around a root, then remove it; if not, then you are left to treat the symptoms. You have an inflammation (with or without pus present) to relieve. If pus germs are present they must be destroyed, all source of irritation must be removed, and as nearly as possible the parts must be kept clean and at rest. If the teeth to be operated on are very loose and it is possible to ligate them, do so; for if the teeth are held firm it will facilitate your work and will make the operation more comfortable for your patient. Permanent splints should be supplied when necessary.

Surgery of the most intricate kind is involved in the curative phase of the treatment, and it is necessary at first to have our field of operation as nearly aseptic as is possible. There is no antiseptic of which we have knowledge which will accomplish much in a mouth where the teeth are partially covered with bacterial plaques and soft deposits, as is usually the condition in a pyorrhctic mouth. Consequently we must obey the first rule of antiseptic surgery and remove all that we can mechanically. In regard to the teeth this would mean the careful removal of all soft deposits, tartar, stains and bacterial plaques from the exposed tooth surfaces. This should be done thoroughly, in a way which will best accomplish the required results. If this work is then followed by the sprays recommended by Dr. Ferris, and introduced to us by Dr. White, we would have an area in which to operate that would be very nearly aseptic. This preparatory work will require some little time, and you may not be able to do more than this at the first sitting. There are several advantages, too, in not trying to do more.

1st. A patient usually dreads the treatments, and if you cause him no discomfort the first time, his fear will be lessened.

2d. The gum tissues will respond to the removal of external irritation, and be less sensitive at subsequent treatments.

3d. You will have a much more agreeable atmosphere in which to work, for there will be no odors emanating from soft accumulations.

4th. You will have less hemorrhage, and a bloody operation is never desirable either for you or your patient.

Of course, if your patient is suffering, relief from pain is the first requisite; if not, then you may use your own judgment in manner of treatment.

You should not overtax your patient's strength, because much benefit may be lost; for any diseased organ needs back of it a healthy constitution to aid in its recovery, and anything which tends to undermine the health, such as a nervous strain, tends to retard repair.

You should impress upon your patient's mind most emphatically the absolute necessity of systematic and thorough personal care of the mouth and teeth. The importance of this cannot be overestimated, and neither you nor your patient can afford to overlook it. Without your patient's cooperation, you cannot produce a healthy mouth. It is impossible; for it requires but a few days of neglect in order that many substances may accumulate on and around the teeth, which are irritating to the soft tissues of the mouth. If there is a source of constant irritation, how can a diseased organ be improved? In this connection the question of tooth brushes, toothpicks and dental floss comes up for consideration. No matter what interest a patient may have in his own case, he cannot accomplish much unless he has the proper instruments with which to operate. There are brushes made which are adapted to almost every condition we may chance to meet. Teeth standing alone, bridgework, long and short crowned teeth, regulating appliances, all these demand different brushes in order to procure the best results. If but one brush is used, and that three or four times a day, the bristles become soft and discolored, which of course is objectionable, and the necessity of more than one brush of its kind, very evident. The use of toothpicks should be discouraged, excepting in rare cases. It is a vulgar habit when

indulged in anywhere, except in the privacy of one's own room. Its object is the removal of food particles, while in fact only the large ones can be removed by its use. The numerous small ones are only pushed further in between the teeth. These latter can be removed by using dental floss, which is an indispensable article in the personal care of the oral cavity. I would rather that a patient of mine use dental floss intelligently once each day (and that just before retiring at night), than a toothpick after every meal. The floss is not only useful in removing food particles from between the teeth, but if properly manipulated will help to break up the bacterial plaques, which otherwise remain undisturbed on the approximal tooth surfaces. When you have gum recession, and the contact points are not too close the unwaxed ribbon floss (fine) is most effective, while the waxed (standard flat) is satisfactory in ordinary cases.

See to it that your patient has the proper quality and quantity of materials with which to work, and that he understands how to use them. He might brush his teeth five times each day unintelligently and not accomplish as much as some other person who used his tooth brush only once each day, but then in an intelligent way.

Before the patient is dismissed from the first sitting he should be given detailed instructions in the care of his mouth and teeth. Do not take for granted that he understands anything about it, but give him a very thorough lesson. Oftentimes I believe we make the mistake of neglecting to explain some very simple thing, thinking it unnecessary, when in this work it is the little things which are most important.

There are but few patients, and I may add a very small number of dentists, who know how to care for their mouths. An intelligent person knows that he ought to keep his teeth clean, and he may do so to the best of his knowledge, but that part of his education has usually been neglected. It is our duty to study each case, point out the surfaces which are neglected, and give the necessary instructions. This is compulsory in the treatment of pyorrhea, for if you neglect this important part of your treatment the results of your work will be unsatisfactory. Where there has been much destruction or recession of tissue the teeth are especially hard to care for, since there is so much tooth surface ex-

posed. Almost every mouth will offer some problem for solution in the matter of personal care, and these problems *must* be solved by the dentist. To some of you this question may seem of minor importance, but speaking from my own observation I believe that a very large number of failures in the treatment of pyorrhea are due to neglecting this apparently minor point.

You should be familiar with the constituents of any powder or mouth-wash you recommend; for they are used so frequently that much harm may follow if any injurious ingredient is contained. An astringent mouth-wash is very helpful while treating pyorrhea.

About forty-eight hours should elapse before a second sitting is given, and then you must use your own judgment as to the location and number of teeth operated on. If the patient has been faithful and intelligent in his care you will not be able to see any deposits on or about his teeth; therefore an efficient spray is all that is necessary in order to prepare for the operation. The difficult part of your work is now to begin, viz., the scaling of the roots guided only by the sense of touch. As you all know, the tactile sense is located in the fingers, and while a delicate sense of touch is natural to some, yet anyone by experience and practice can develop what faculty he may have in that direction. One should be able to recognize live bone, dead bone, tooth and deposit solely by the sense of touch. Without this skill your work necessarily cannot be thorough, no matter how conscientious you may be.

This skill cannot be obtained outside the mouth, hence the need of education in this field of work while in college. No student should be allowed to graduate who has not thoroughly scaled a sufficient number of teeth to make him reasonably skilful, at least so that he may be able to meet with some degree of success when in practice.

There are many scalers on the market, and no doubt each one has its place of usefulness. However, no matter how many scalers you may possess, there are always favorites which prove themselves most valuable to you. To some men certain instruments are indispensable, while to others these same instruments are of little value. It is best, however, to have a large number from which to choose. Large, clumsy scalers are objectionable for two

reasons: Gum tissue is unnecessarily lacerated, and with them you can only recognize the large deposits. The smaller points are much more preferable and useful. The Smith and Ferris-Tompkins files are indispensable, for with them one can detect the most minute granules. Excepting in rare instances, it is not necessary to use a local anesthetic. I have not yet found it necessary in any case. When the gums are anesthetized the operator is unconsciously less careful, gum tissue is lacerated unnecessarily, and there is as a result just that much more tissue for nature to repair. I believe, too, that an anesthetic interferes with the healing process. If, in working in a pocket, one confines himself to the area bounded by the walls of the pocket he will not cause the patient pain.

Every trace of necrosed bone must be removed, as well as all deposits of any form or kind. Carefully rinse in an antiseptic, and wipe instruments whenever you remove them from the mouth. If you are not careful to do this you are apt to either carry back into the pocket material you have removed, or you may infect another pocket with this material. Be sure to remove everything from the pockets which you have from the tooth or process. Carefully syringe out pockets with warm phenol sodique and then medicate with an efficient antiseptic. The four antiseptics most universally used are: 25 per cent. trichloracetic acid, lactic acid, full strength, aromatic sulphuric acid 25 per cent., zinc chlorid 50 per cent. Any one of these will prove satisfactory if your work has been thorough. An orange wood applicator is best for applying the medication, as you can carry sufficient to place with the point and carefully rub the surface of the root upon which it is needed. In this way there is no danger of overdoing the medication. Then carefully dry the opening and surface of the tooth so that you can seal the pocket with steresol, or something similar. Steresol is a preparation recommended by Dr. M. L. Rhein, of New York.

If the pockets are sealed nature will have an opportunity to do some repairing, and for a time will not be interrupted by food particles, bacteria or saliya laden with toxic materials. If, after this treatment, the pocket does not heal it is because there is still some cause for irritation, due to deposits which have not been removed,

necrosed bone or bacteria. Sometimes it is necessary to pack the pockets in order to assist the healing process, especially when considerable gum tissue or process has been destroyed. A very good and effective material for this purpose is iodoform cordine. The especial virtue of this is that it is already prepared to use, more easily manipulated and is much more nearly aseptic than would be a piece of cotton prepared on a broach by you at the chair. If a pocket needs to be packed it should be irrigated and repacked every day, allowing it to heal from the bottom toward the opening. If pus be present, do not begin to scale the roots until you have syringed out the pocket several times with some antiseptic, but never with pyrozone, for there is danger of its carrying the pus germs further into the surrounding tissues when it effervesces.

During treatment the importance of artificial stimulation to the tissues cannot be too strongly emphasized. In most cases of pyorrhea we have a condition of malocclusion, in which case often there are some teeth which receive no use at all, consequently we have a stagnant circulation in the pulp and soft tissues. This can only be improved by artificial means, and the most effective method is by gum massage, vigorous brushing and by frequent hand polishing; the latter not only stimulates but removes all source of irritation, so that the tissues have nothing to do but to recover.

The prophylaxis treatment should be given as frequently as the severity of the case demands until cured. In order to maintain a healthy state the mouth and teeth must be kept free from accumulations, which, if allowed to remain, will so irritate the tissues that a return of former conditions will be inevitable. But if given a healthy mouth it is a very easy matter to maintain such a condition, providing you will do your work faithfully.

How unfortunate it is that we must meet with such an awful mouth affection, especially in the practices of ethical dentists, but since we do we must treat it as we find it. However, we should plan for the future and prevent in the coming generation such conditions as we see to-day. The orthodontists are doing much to help us in that direction, and with the combined efforts of all we should leave no cases of pyorrhea for our successors to

treat. We must educate ourselves so that we can recognize the early stages of the disease.

If we can do this it will mean but little treatment in order to place the mouth in a healthy condition, and by keeping away all local irritants those tissues can be kept in a state of health. How much better is prevention than cure! The old adage, "A stitch in time saves nine," is very appropriate.

It is very frequently some dentist's fault that a patient has pyorrhea in its advanced stage, for usually we find that the patients who come for treatment late have been regular patients of some one for years, and that someone has either treated them inefficiently or has discouraged them completely with regard to the saving of their teeth.

It is not a difficult task to cure pyorrhea in its incipiency, and a healthy mouth is quite easily maintained as such with your patient's cooperation. Pyorrhea *can* and *should be* prevented. It is your duty and it is mine. In 1880 Dr. George Mills of Baltimore made a prophecy, which is, I believe, being realized to-day and which will be even more applicable to the future. He says, in speaking of pyorrhea: "The time will come, and it is coming very fast, when men will take an interest in it and be anxious not only to take care of the cases, but they will come to observe that the results are so terrible in the mouth and upon the health of the tissues generally that they will anticipate cases, knowing that prevention is better than cure. This time will come soon or late just as stimulus is brought to bear upon our profession." Let us see that stimulus is *brought* to the profession in *heroic* doses. Those who are interested, do all you can. Pyorrhea *can* be cured and *kept cured*, and what is even of more importance, it *can be prevented*. Let us not only give relief to suffering humanity, but let us hasten the time when suffering from pyorrhea will not be known.—*Dental Register*.

FIFTY YEARS OF DENTAL SCIENCE, WITH ITS FADS AND FOIBLES. By I. C. Curtis, M.D.S., Fulton, N. Y. In the year 1836 arsenic as a devitalizing agent for tooth pulps was first brought to the attention of the dental profession by Dr. Shear-jashub Spooner of Montreal, and the profession was up in arms

against it, claiming that it was fraud, and that others had tried it as far back as 1830 without success.

In the year 1840 Dr. Westcott of Syracuse, N. Y., discovered the cohesive properties of gold, and in the year 1847 lectured on the subject before the students of the Baltimore College of Dental Surgery; and it is to the credit of this same Dr. Westcott that he was the first to use plaster of Paris for taking impressions of the mouth; this occurred in 1844.

At a session of the American Society of Dental Surgeons held in the year 1847, several of its members were expelled from the society because they would not sign a pledge to abstain from the use of amalgam as a filling material in their practice. Dr. Eleazar Parmly was its president and one of the most active members in this action, although he informed Dr. John B. Rich that he had "never tried any of the stuff" and had "never experimented with it in any way."

In 1850 saleratus (potassium bicarbonate), used in making some kinds of bread, was stated to be responsible for a large percentage of tooth decay; and a Dr. Baker asserted that in two weeks a set of teeth was destroyed that had been placed in a solution of the above-named chemical. This same year saw continuous gum work for artificial dentures advocated for probably the first time.

About 1856 local anesthesia by spraying with either "sulfuric ether" or with rhigolene was introduced. In this same year Guilloy's cement was invented, and in 1871 was expected to supersede gold as a filling material.

The internal use of morphin in quarter-grain doses to obtund sensitive dentin during dental operations was advocated from 1845 to 1866.

In the year 1858 Dr. Elisha Townsend (of world renown as an advocate of amalgam for filling teeth) pledged himself never to use amalgam again for tooth filling. (Letter to *Dental News Letter*, vol. xi, p. 169; see Flagg's "Plastics.") This took place before the "New Departure" in dentistry, as promulgated by Drs. Flagg and Palmer, and agitated the profession not a little.

In 1860 zinc oxychlorid as a filling material was advocated, and great expectations were aroused as to its lasting qualities.

In 1862 the electrolytic theory of dental decay was promulgated. In 1866 it was a very common practice for vents to be drilled in

the roots of devitalized teeth, just under the free margin of the gum, for the escape of gases. In the same year the theory was advanced—and “proved” by those who advocated it—that the wearing of a vulcanite plate would produce salivation through the mercury contained therein.

Flexible edges to vulcanite plates, and various materials for root filling, among which were wood and cotton, were also advocated during this year, but the greatest prominence was given to the method of filling root canals with cohesive gold throughout their entire length.

In 1868 the law regulating the practice of dentistry in the State of New York was enacted.

In the same year the capping of exposed and partly decomposed pulps was extensively advocated by some of the best-known members of the profession. Replantation after filling root canals is also credited to the year 1868.

We also find that in this same year it was deemed good practice to tie a string around a tooth decayed on its approximal surface in order to keep the cavity dry during the filling of the tooth.

In 1869 the use of the rubber plate was condemned, and that of Rose Pearl—another name for a compound practically similar to celluloid—was advocated in its stead.

In 1870 the American Dental Association passed a resolution to the effect that any member of the association, using a showcase should be expelled.

In the same year Dr. James Truman protested against the capping of exposed pulps, for that subsequent events would prove they were dead and alveolar abscess would result. Dr. J. D. Thomas at this time asserted that after an abscess has once formed it is impossible to save the affected tooth. In the same year the administration of chloral hydrate in doses of 30 grains was recommended to produce insensibility during extraction. The average dosage at the present time is from 5 to 15 grains, and it is used mostly for the same purpose.

During 1870 cast aluminum plates were very strongly advocated, and bid fair to take the place of the “obnoxious” rubber plate.

In 1870 the use of the heavy gold foils ranging from Nos. 20 to 240 were advocated by some and condemned by others. The same year also witnessed a controversy regarding the variety of mallets

to be adopted, some favoring the light and others the heavy ones, while a third class demanded that the mallets should be covered with leather, presumably to deaden the blow.

Dr. Dio Lewis in 1871 contended that tomatoes were a constant source of menace through their power of inducing salivation when ingested. In this same year the profession was busy fighting against the acceptance of the germ theory of disease.

In 1871 methylene bichlorid, ethyl bromid and methyl bromid were advocated as general anesthetics, and in the same year Dr. Robert Arthur published a book advocating the cutting of the approximal surfaces of teeth to make self-cleansing spaces, and by so doing prevent decay.

In 1872 Dr. Theodore F. Chupein advocated the amputation of a portion of a diseased pulp and the capping of the remaining portion, filling the cavity with zinc oxychlorid.

In 1872 the practice of applying arsenic trioxid for obtunding sensitive dentin became so general that it led Professor Kingsbury to present a paper to the Odontographic Society of Pennsylvania (*Cosmos*, vol. xiv, p. 137) protesting in the strongest terms against its use for such purposes. In the same year the use of zinc chlorid as an obtundent was recommended to the profession.

The year 1873 witnessed the general introduction of the magnifying glass for the purpose of inspecting dental work during filling and finishing (*Cosmos*, vol. xii, p. 597, and vol. xv, p. 153), but more particularly when completing excavation after the rubber dam is applied, for many defects appear when dry that are not perceptible when the dentin and enamel are moist. This same year the American Dental Association condemned Dr. Arthur's book which advocated the cutting of V-shaped spaces to prevent the development of caries.

In the year 1873 we see liquid nitrous oxid gas taking the place of the cumbersome gasometers, and Dr. Beers of California patenting a gold crown, an illustration of which is given in the *Cosmos* for 1880 (vol. xxii, p. 464), which practically illustrates the gold crown of today.

The following is a verbatim report by Dr. A. P. Southwick, which appeared in 1873, giving his views on celluloid:

"Last spring I invested twenty dollars in as many celluloid plates; also bought an apparatus with instructions, and followed the latter

to the letter. One by one they came back on my hands, until today the last, I believe, has come, for which I thank Heaven. Some turned black as ink directly; others, well fitting and satisfactory at first, gradually warped out of shape and fit; others after two or three months' wear began to shed the teeth. In some I used plain and in others gum teeth, and where the celluloid showed between the plain teeth, the gums turned black and gave black satisfaction. Will someone who has so highly indorsed the material tell me what is the matter, and whether they have any better luck?"

In the *British Journal of Dental Science* for 1874, Dr. Thomas Fletcher asserts that a plug made of cohesive gold inserted in a tooth is not water-tight, while one made of soft foil can be made tight; and in the same year Dr. J. Payne in the *Chicago Medical Journal* claimed that corrosive sublimate is produced in the mouth from amalgam fillings, and asked the State Medical Society to favor the enactment of a law making it a penal offense for a person to fill a tooth with amalgam. Dr. C. M. Richmond in the same year advised the filling of root canals with wood saturated with some antiseptic.

In 1875, among the various materials used in filling the roots of teeth were asbestos, gold, lead (in fine wire), cotton saturated with creosote, salicylic acid, zinc oxychlorid and chloropercha followed with a guttapercha point forced into the root to its apex.

The same year, C. F. Chandler, professor of analytic and applied chemistry in Columbia College, New York, made an exhaustive report on samples of saliva in which various samples of amalgamated alloys had been digested, and reported not having found in them a trace of mercury.

In 1876, zinc oxychlorid, so strongly advocated for the capping of exposed pulps, from later developments was found in a large per cent of the cases in which it had been used to have caused death of the pulp, and a malleable amalgam which was placed upon the market was found to contain cadmium, to which likewise a share in devitalizing teeth was attributed. A controversy ensued during this year between the users of soft and cohesive gold, each side scorning; mesmeric anesthesia was introduced at this time for the extraction of teeth.

Among other things of note in 1876 was an exhibition by Dr. T. C. Stellwagen of Philadelphia, which consisted of a tooth trans-

planted from a human mouth to the comb of a cock. The tooth was firmly attached, and while the pulp had become devitalized the pericementum remained active. This result gave an impetus to the replanting, transplanting and implanting of teeth in the human jaw.

In 1877 it was discussed and advocated before the New York Odontological Society that all exposed pulps should be freely bled and capped immediately afterward with some plastic material and the cavity of decay at once permanently filled.

In 1878 Dr. J. Foster Flagg presented a paper in which he gave his experience with the interrupted electric current in extractions and for the obtunding of sensitive dentin, claiming success in 94 per cent of two thousand cases.

In 1879 a paper advising the extraction of roots and attaching porcelain crowns to them and afterward replanting the reconstructed roots was read before the First District Dental Society of the State of New York.

During 1881-82-83 the Bonwill, Weston and How crowns were prominently brought to the attention of the profession.

In 1883 the collar crown, of which the Richmond is but a modification, was invented by Dr. Wilbur F. Litch, and following this, bridge work came into general use.

In 1884 cocaine was tried unsuccessfully for the obtunding of dentin, but it was not till 1886 that it was successfully used in extractions by the hypodermic method. Subsequent results have proved, however, that it is fraught with its share of unpleasant results.

In 1886 glass as a material for inlays was suggested, but it was in 1862 that Dr. B. Wood gave to the public the plan he had adopted of making inlays of porcelain. The merits and demerits of inlays have been a theme for controversies up to the present time.

In 1887 copper amalgam became one of the fads, but it was denounced by the late Dr. Flagg as untrustworthy, and he advised against its use. In this year we also find immediate root filling after extirpation of a vital pulp as one of the new things given to the profession.

In 1889 the implanting of metallic capsules in the jaw, to serve as anchorage for artificial dentures, is described in the *Cosmos* (vol. xxxi, p. 232).

In 1890 cocaine cataphoresis for obtunding sensitive dentin and

for the painless extirpation of exposed pulps came prominently before the profession. The operation was performed with varying degrees of success, seemingly on account of defective apparatus or lack of knowledge of electricity on the part of the individual operator.

The use of methyl chlorid spray on sensitive dentin dates back to the year 1890, while at the present time cocaine pressure anesthesia is one of the boons to the tired operator dealing with exposure of a pulp which must for good reasons be extirpated and the root canal filled immediately.

We are now awaiting results of the so-called insoluble cements, and the operator of five years hence will have the benefit of our experience.

It is not the purpose of this paper to either extol or decry the practice of preceding years, but I leave it for the intelligence of the dentists of this century to separate the wheat from the chaff, and perhaps incidentally be convinced that all that has been written on dental subjects has not borne the test of actual practice.—*Dental Cosmos.*

ON LYMPHOID DEGENERATION OF THE SALIVARY GLANDS. By W. Sampson Handley, M.S., F.R.C.S. The purpose of this brief paper is to draw your attention to a striking anatomic change which may occur in salivary glands as the result of chronic catarrhal inflammation spreading back along the duct of the gland. The change consists in the total destruction of the epithelial elements of the gland, accompanied by a hypertrophy of its lymphoid elements. The microscopic structure of the gland becomes practically indistinguishable from that of the tonsil or of a lymphatic gland, and the saliva-secreting function of the gland is necessarily abolished. I have been unable to find any description of this remarkable change in English medical literature.

The following is the case which drew my attention to the subject:

The patient, a woman of 35, at the age of 28 noticed a swelling in the left submaxillary region, immediately beneath the angle of the mandible. It was about the size of a walnut. A probe was passed from within the mouth and afterward a small gray stone

worked out from under the tongue on the same side. For two years she was free from trouble, but on several occasions since she has had similar attacks of pain and swelling, and one of these which occurred last year was followed by the passage of another stone, rather smaller than the first one. The attacks cause great inconvenience in speaking and eating. Several teeth on the left side, both upper and lower, have been extracted at different times.

Condition on Admission.—A painful and tender swelling, as large as a walnut, is present in the region of the left submaxillary gland. It is hard and slightly movable, and is covered by normal skin, to which it is not adherent. The swelling can be palpated through the mucosa of the floor of the mouth. The orifice of Wharton's duct on the left side is somewhat swollen and congested and discharges a mucopurulent fluid. A probe passed along the duct failed to detect a calculus. As no other treatment seemed likely to be efficacious, I excised the submaxillary gland through an incision in the submaxillary region. The apparent enlargement of the gland proved to be mainly due to thickening of its capsule and to matting of the structures surrounding the gland. The facial artery and vein were so closely incorporated with the swelling that they had to be divided.

The wound healed rapidly, the discharge ceased, and the patient left the hospital on the eleventh day after the operation. She remained well until recently, six months after the operation, when she returned to the hospital with her old symptoms. The left sublingual gland, which had previously given no trouble, was now found to be enlarged and painful, and an incision into the gland through the floor of the mouth gave vent to pus and to two minute calculous particles. It seems possible that it may be necessary to excise the left sublingual gland in order to obtain a permanent cure. The excised submaxillary gland showed to the naked eye the characteristic globulation of the salivary gland. It was rather diminished than increased in size, and microscopic section shows that its characteristic structure has entirely disappeared. No epithelial acini or ducts are to be seen. The spaces between the connective tissue septa of the gland are not occupied by glandular globules, but by masses of lymphoid tissue, consisting

of a fine connective tissue network, the meshes of which are filled by masses of small round cells with relatively large nuclei, quite indistinguishable from lymphocytes. In many places definite lymph follicles, like those of the tonsil, or of the vermicular appendix, can be seen. The center of these follicles is occupied by a group of lightly stained epithelioid cells, surrounded by dense masses of small round lymphoid cells lying in a fibrous or adenoid reticulum.

I do not think that an instance of the transformation of a submaxillary salivary gland into a mass of lymphoid tissue has been recorded. On looking into the subject I found, however, that Minelli has recently recorded a similar change occurring in the parotid and in the lachrymal glands. The following is an abstract of Minelli's case of lymphoid degeneration affecting the parotid gland:

The patient was a woman, age 28, who for six years had suffered from painful enlargement of both parotid glands. The glands, especially the left one, were hard and tender to touch. There were no blood changes and no enlargement of the lymph glands. The general health was good. The painful left parotid was removed and examined. On section it appeared to be made up of yellowish-white nodules, varying in size from a pinhead to a pea, separated by connective tissue septa. Here and there were cysts with fluid contents probably derived from the ducts. Microscopically the proper structure of the parotid was preserved only in a few places. The greater part of the gland had undergone a change consisting in an enormous increase of the interlobular connective tissue, and a round-celled infiltration in the interior of the lobule itself. Where these changes are most complete the tissue resembles a true lymph follicle, and may even, in many places, present the exact appearance of a lymph gland. One sees in the middle a clear round part made up of large lymphocytes and a very fine network; all around is a dense collection of small cells with relatively large nuclei (lymphocytes). Just outside this collection of round cells can be seen, in favorable sections, a space like a lymph sinus, bounded externally by a delicate connective tissue capsule. A careful study of the section shows that this process of lymphoid degeneration commences in the glan-

dular tissue. The basement membrane disappears and lymphocytes infiltrate, separate and finally destroy the cells of the glandular epithelium.

A still further change can be recognized in places, namely, the organization of the lymphoid tissue into delicate fibrous tissue. The change begins at the periphery of the nodules of lymphoid tissue.

In Minelli's opinion the primary change is the infiltration of the acinus by lymphoid cells. The destruction of the epithelium is a secondary consequence of this invasion. I am unable to share this opinion, and believe that the primary change is a chronic catarrh of the ducts and acini, the result of bacterial invasion from the mouth.

A case apparently somewhat similar to Minelli's occurred recently at the Middlesex hospital under the care of Mr. Bland-Sutton. The patient, a girl, aged 18, had for six years been subject to attacks of swelling of the right parotid, accompanied by pain, each attack subsiding in the course of a few weeks. There was no evidence of salivary calculus. A mucopurulent discharge was oozing from the orifice of Stenson's duct. The condition on the left side was similar but less marked. All the teeth had been extracted eighteen months previously, and there was some reason to think that the patient had suffered from pyorrhea alveolaris. The right duct was slit up, and the patient went out somewhat relieved. A short-chained streptococcus was detected in the discharge by Dr. A. G. R. Foulerton.

In all probability the following case would have shown similar changes in the gland:

In 1904 I was consulted by a gentleman, aged 39, who complained of a gelatinous discharge coming into his mouth and of a lump in the situation of the right submaxillary gland. There was a mucopurulent discharge from Wharton's duct on the right side, in which an organism indistinguishable from the pneumococcus was found microscopically by Dr. Eastes. A probe passed along the duct failed to detect a calculus. The patient was very gouty and smoked heavily; he also took alcohol somewhat freely. An anti-gouty regimen, combined with oral antisepsis and syringing of Wharton's duct, failed to do more than produce temporary relief,

and I advised excision of the gland. He was, however, unwilling to have an operation and I lost sight of him. He ultimately consented to excision, which was performed with an excellent result.

It appears probable that in all cases I have referred to the primary change is a chronic catarrh of a salivary duct, the result of bacterial invasion from the oral cavity. In cases where a calculus is found the question arises whether chronic catarrh of the gland and of its duct is due merely to the irritation of the stone. The probabilities seem to be against this supposition. It is unlikely that a salivary calculus is ever deposited from healthy saliva in a duct with a healthy epithelial lining. In this connection I may remind you that clumps of bacteria have been detected forming the nuclei of gall-stones. According to Mr. Bland-Sutton, catarrh of the epithelial lining and the presence of microorganisms are the principal conditions which determine the formation of stones in the gall-bladder, and I think a similar conclusion is valid with respect to the salivary ducts.

A consideration of the whole subject of chronic catarrhal inflammation of the salivary glands lies quite beyond the scope of this short paper, which is concerned merely with one of the results of this form of inflammation, namely, the metamorphosis of the gland concerned into the likeness of a lymphatic gland. This change is not so improbable as would at first sight appear, for a similar change takes place in certain glands in the course of normal development. The tonsil, for instance, like a salivary gland, commences its career as an outgrowth from the epithelial lining the oral cavity. From the primitive outgrowths, which persist as the crypts, branching epithelial buds are given off. In the salivary glands these epithelial buds acquire a lumen and persist as the acini. But in the tonsil the epithelial buds remain solid, become infiltrated by mesoblastic cells, and finally disappear, leaving the tonsil as a mass of lymphoid tissue. The history of the thymus gland is very similar. Here the corpuscles of Hassall represent the relics of the epithelial outgrowths which originally formed the structural basis of the gland.

The occurrence of lymphoid degeneration in the salivary glands as the result of pathologic change emphasizes the close developmental relationship between the tonsil and the salivary glands, and

almost justifies the tempting hypothesis that the tonsil must be looked upon as an obsolete or abortive salivary gland.

It would be interesting to know whether lymphoid degeneration is an invariable consequence of long-standing catarrhal inflammation of a salivary gland. If this is the case, one need have little hesitation—in the case of the submaxillary gland at any rate, where no operative difficulties or complications need be feared—in advising excision of the gland. It is certain that a gland in which this change has taken place can never recover its function of secreting saliva. The best that can be hoped is that after years of chronic mucopurulent discharge, the same change will take place which occurs in the adult tonsil, that is to say, the lymphoid tissue will be converted into fibrous tissue, and the gland will remain as a harmless and shrunken relic. An early operation will immediately place the patient in the same position and will avoid the chronic mucopurulent discharge which may accompany this tedious process of natural cure.—*British Journal of Dental Science*.

AND THEY SAY "COMPARISONS ARE ODIOUS." By Dr. A. J. Flanigan, Springfield, Mass. For some years I have listened with patience—or rather endurance—to many of the unfair and illogical statements made by the representatives of the destructive in dentistry. In the short time at my disposal I intend to treat of certain particular instances where the pessimism of the last decade in dentistry is as common as it is world-wide, and yet, to my knowledge, it has never been refuted successfully by a study and analysis of the statements made by these seemingly intelligent practitioners of dentistry. I refer to that everlasting comparison of dentistry to medicine. Were I to generalize this morning my argument would be like the Mother Hubbard wrapper worn by some members of the fair sex—while it seemed to cover everything, yet it touched nothing in particular.

I would like to speak of the founding of dentistry as a profession. Perhaps there are many, both of the older and the young men present today, who may not know why dentistry of itself became a distinct calling. In 1839 Dr. Chapin A. Harris and that other famous man, Dr. Horace Hayden—to whose memory, be it said to the credit of Connecticut dentists, you are about to erect

a memorial at Windsor, Conn.—were regular members of the medical profession, of good standing in the community, but practicing dentistry under the title of the medical degree. These two men tried to establish a chair of dentistry in the medical college at Baltimore; after refusal there they tried in other medical colleges, but did not succeed. To politely sum up the results of their efforts, they were kicked out. The medical colleges would have nothing to do with dentistry. Now I want you to bear in mind today one thing, and that is, that dentistry is not of medicine because medicine would not have it.

We are attending a dental convention and Dr. A. is lauding the superior conditions in medicine relative to medical education in general. The *Journal of the American Association* of August 25, 1906, is decidedly interesting reading, for it is the so-called "educational number." There are about 156 colleges teaching medicine in the United States. There is a college in Alabama which claims four separate sessions. Investigation proved each session to be six months. A college in California has extended its session this year from six to eight months. They—the faculty—are the examiners for preliminary requirements. A college in Colorado advertises good clinical material; population of the town six thousand one hundred and fifty—one hospital with forty beds. Quite a prominent university medical department—about midway between the North and South—advertises the following: "—in conformity with the spirit of the organic law of the university, is open to all, without regard to sex or race, who are qualified by good moral character, proper age and suitable education." A very prominent college of Georgia advertises that first-course students are required to give satisfactory evidence to the faculty of such educational qualifications as will be deemed necessary for the successful prosecution of their medical studies. Another college in Georgia this year, changes from six to seven month sessions. An Illinois college claims that attendance on the winter term of thirty-six weeks is compulsory, but that the summer term of twelve weeks is optional. Another Illinois college holds only evening sessions. An Iowa college in 1906 announced that in that year preliminary requirements would be a high-school course or its equivalent. A Kentucky medical school requires applicants to be sufficiently proficient in English, arithmetic, algebra, physics and such Latin as would be acquired

in one year's study. Louisiana has a college giving four sessions of twenty-six weeks each. Mississippi has a college in a town of two thousand people. New York city has a college giving four sessions of only seven months each. North Carolina has a college in a town of eight hundred and twenty-four inhabitants. An Oregon school advertises that members of the faculty do not hold examinations for entrance. South Carolina has a school with this interesting statement of requirement:—"or evidences of education satisfactory to the faculty." Tennessee has a medical department of a university where we are to understand that recommendations from two well-known physicians are requirements, and the clinical facilities are obtained in a town of six hundred people. Texas has a college giving four sessions of six months each. West Virginia has a college in a town of 1,900 people.

A graduating physician is supposed to have a general knowledge of anatomy, *materia medica*, therapeutics, chemistry, surgery, physiology, bacteriology, biology, gynecology, pathology, toxicology, pharmacology and a score or more of other "ologies." He is expected in from twenty-four to forty months to acquire all this, while a graduating dentist has been given from twenty-one to twenty-seven months to secure theoretical and technical training for his special calling. A memory of algebra comes to the rescue of the tired cells of my brain, and the problem is solved: Twenty-four to forty months is to general education and culture as twenty-one to twenty-seven months is to special education and partial culture. To sum up the question of the comparison of medical and dental education, I have but one question to ask the pessimist: Which is the safest practitioner to let loose on the public?

You have met Dr. B. He is the fellow that says dental societies and their results are so different from and inferior to the medical ones.

This is a point that is talked about so much today that I fear that here in New England the men would be most interested in the conditions of medicine and dentistry as related to their respective states alone. Now, while the comparison of conditions here in New England is favorable to dentistry, it is my thought that perhaps we are willing to yield the point that possibly the conditions in other states are not so favorable.

The following table gives the number of physicians and dentists

in the New England states and the number in their respective state medical and dental societies, up to October, 1906:

	Pract. Med.	State Soc.	Pract. Dent.	State Soc.
Maine	1,167	486	374	121
New Hampshire	671	403	190	93
Vermont	680	416	162	110
Massachusetts	5,066	3,044	1,375 to 2,000	515
Rhode Island	690	322	325	85
Connecticut	1,288	780	550	208

Number of physicians and dentists not members of their medical and dental societies:

	Non-members.	
	Med.	Dent.
Maine	681	253
New Hampshire	268	97
Vermont	264	52
Massachusetts	2,022	860 to 1,485
Rhode Island	368	240
Connecticut	508	342

The lowest percentage of dentists in state dental societies in New England is 23 per cent and the highest 68 per cent. For years we have had one of the editors of dental journalism, Dr. J. N. Crouse, claim there was not a state in the United States that had more than 10 per cent of its dental practitioners in its society. If you will investigate you will find that the various medical societies in New England have a small percentage of their members in attendance at the annual meetings, and that the medical and surgical exhibits create greater interest than does the meeting proper. To obtain essays of worth and men to discuss them is also a problem. If you will examine medical literature for the last decade you will find many articles and editorials treating of educational and society shortcomings. As illustrating a few pointed complaints see the following editorials in the *Journal of the American Medical Association*: January 20, 1906, "Contract Practice;" September 8, 1906, "Quack Doctors and Quackery;" January 12, 1907, "The Trading Stamp System in Medicine."

The *California State Journal of Medicine* for October, 1906, has a most cheerful editorial for the depressed dentist entitled "The Sins of Physicians."

The refined dental conscience has been irritated lately by the evils of the proprietary drugs and nostrums. We—Tom, Dick and Harry—in using some one of these, may feel that we are in strong and representative company, for you will find the deans and professors of many of our dental schools heading the list of testimonials. For some months a supposed M. D. has been traveling over New England selling office and town rights for the use of an "internal drug system for painless dentistry." The testimonials he showed from teachers of dentistry and members of examining boards would bulge the eyes of the manager of a fake remedy "testimonial bureau" green with envy. The latest and real up-to-date testimonial is given on the engraved card of one of our best-known deans and oral surgeons. For the gem of testimonial we must, however, turn to one from a member of our Massachusetts Dental Society:

"AN HYPERSTROPHIED PULP.

"You want to know, Dr. ——, what I think of your preparations. Well, here it is. I can take your ——, wet a pledget of cotton with it, dip that into your ——(you ought to call it 'Benumber'), put this on to an exposed pulp and get anesthesia in half a minute. Then bur out that sleeping pulp without pain. Then I put into the pulp chamber a ——, over this a permanent filling at first original sitting. I never remove the nerves out of the canals. That is unnecessary work.

"The above treatment is the acme of simplicity, and the results are satisfactory. No ulceration or other trouble.

"One year ago I had an hypertrophied pulp that filled the cavity of decay. I put on to the pulp some —— for a few moments to benumb it; then cut it off even with the floor of the cavity of decay, and stopped the flow of blood with ——; excavated the cavity, dried it out, then put squarely upon the pulp a ——, over this a permanent filling. There has been no trouble with that tooth from that day to this—December, 1906. Such a unique experience as this is something more than you claim, and is remarkable to the last degree.

"M. M. ——, D.D.S., ——, Mass."

This testimonial brings to my memory thoughts of the late Dr. J. Foster Flagg, when he lectured on those nice, quiet, sleeping pulps mentioned in this testimonial. One such was a sleeping beauty in September, a sleeping volcano in February and an erupted vol-

cano in March, and by May the Doctor of Dental Surgery was, in the mind of that patient, a Doctor of Doubtful Skill.

I am not going to weary you with a dissertation on the trouble medicine is having over the nostrum family, for all you need to do is to write to the makers of any of their products a letter of inquiry as to the worth of their drugs, and you will be furnished with testimonials galore.

If you are interested in the opinions of medical men relative to this evil it would be profitable to read the following articles in the 1906-07 issues of the *Journal of the American Medical Association*: "Proprietary Medicines," by A. Jacobi, M.D., New York; "Proprietary Medicines and Their Abuses," by George Dock, M.D., Ann Arbor; "The Physician's Responsibility for the Nostrum Evil," by Richard C. Cabot, M.D., Boston; "Proprietary Medicines—Some General Considerations," by George H. Simmons, M.D., Chicago; "Effect of Proprietary Literature on Medical Men," by N. S. Davis, M.D., Chicago; "The Responsibility of the Medical Teacher for Existing Conditions," by C. S. Williamson, M.D., Chicago; "The Evils of Preparatory Medicines," by Joseph A. Pettit, M.D., Portland, Oregon; "The Elimination of the Nostrum Traffic, an Evident Duty of American Physicians," by M. G. Wilbert, Ph.M., Philadelphia; "Relations of Physicians to the So-called 'Ethical' Proprietary Medicines," by C. B. Kuykendall, M.D., Pomeroy, Washington.

Perhaps the most telling paper yet presented to the medical profession in relation to this great evil was that of the editor—Edward Bok—of the *Ladies' Home Journal*, before a large gathering of physicians in Philadelphia, entitled, "The Physician and the Nostrum."

The *Journal of the American Medical Association* is generally admitted to be the representative journal of the medical profession in the United States. While admitting this, it is well to remember that there are many other journals not of a representative nature, and some are not free from the so-called trade influence. There can be no question whatever that dentistry in the United States needs a journal to represent dentistry on lines similar to that journal which represents medicine. Well, how are we going to do it? From all that has been written and said for and against independent dental journalism, three great fundamental principles can be rescued

from the fray: (1) The dental profession must be organized into a national society, representative of the calling; (2) the journal must have a subscription and advertising income large enough to be more than self-supporting—the subscription income must come mainly from your national society; (3) independent journalism cannot be built up by abusing and slandering trade journalism.

For some years the essayist has been connected with a successful publishing house in minor capacities—as a stockholder, contributor and director. Naturally observations were made of those things or events which made for success. I will mention a few: We never held subscribers very long on pure sentiment; there had to be one head to every department; the head of every department gave his full energy and time to that end and had to be paid accordingly; we found no history of a successful publication which did not depend on its advertising for its main income; the larger the subscription list, the higher were the advertising rates; last, but by no means least, we never overcame competition by abuse or slander, but only by giving a better publication. If you will take time to investigate the success and standing of the *Journal of the American Medical Association* you will find it departs in no radical measure from those fundamentals which go to make up success in bringing forth the many other publications which cater to worlds other than medical.

Intelligent members of dentistry are pessimistic when the value of exhibits at our conventions are considered. We have been informed by some of the practitioners that medical societies in general did not countenance or have charge of the space where medical supply houses exhibited their goods. I find from medical men in position to know, that they sell space to the dealers in the same way that we do to the dental trade. Certain it is that the medical and surgical exhibit at the meeting of the American Medical Association last June at the Mechanics Building in Boston was controlled by that society. If you attended that exhibit you certainly must admit that conditions were such as to put to shame the wildest dreams of the dental exhibit objector.

The dental practitioners residing in places of large population and business activities have never known the lack of such a necessity as good dental depots, where all that is essential in appliances and materials is on daily exhibit. What of the practitioner many

miles from dental depots, whose only chance to see a good exhibit is when he attends your conventions? When you condemn exhibits are you giving these members a helping hand? An exhibit rightly controlled is one most important part of a successful convention. I hear again the old claim that exhibits detract from the higher and better part of dentistry—that is, from the addresses and essays. If this last claim be true, then, to be logical, you must admit one of two things—either your addresses and essays or the *esprit de corps* of your membership are at fault. A certain deacon late in life made a rather prolonged and extensive journey to foreign lands. (Report said he was not a deacon in his younger years.) On his return home he was much quizzed as to his opinions of foreign lands and cities. One of the elderly deacons was desirous of his giving them his impressions of Paris. He was asked several times before he consented, for there was an unusual tendency to pass by Paris. At last he said that it had produced the most peculiar impression of all—an impression that he could not chase from his mind—that he should have visited Paris before he joined the church. Can it be that the exhibit is the Paris of the dental convention?

Tight shoes are mighty uncomfortable, but they have a virtue—you forget your other troubles. Pessimists are mighty unreasonable, but they have a lasting virtue—they will cure your blues. There are good members of dentistry, there are bad members of dentistry, yet this one great fact stands out prominently—their badness is not due to dentistry or its teachings. There is the chaff and the grain, the tares and the wheat—together mixed, yet capable of separation. Then I say to you, gentlemen, separate! Error and truth exist side by side, even in medicine and dentistry.—*Dental Cosmos.*

ANESTHESIA AND METHODS PRODUCING IT. By Henry B. Ingle, M.D., Philadelphia, Pa. Anesthesia is a subject the importance of which has not been sufficiently appreciated by the medical profession of this country, and is only now beginning to receive the degree of consideration which it deserves. In the great majority of American hospitals the administration of the anesthetic is the duty of the youngest member of the house staff, and falls

to him with the laboratory work and the taking of histories; and when he becomes a senior resident he is allowed to do the less responsible work of holding retractors or sponging after the surgeon's knife. In England, on the contrary, anesthesia is becoming a special branch of medicine, and each hospital has its staff anesthetist as it has its staff surgeon.

Any surgeon who has suffered the mental anxiety of performing an operation under the irregular narcosis of an inexperienced anesthetist, with the alternate fears of the expulsion of the intestines from the abdominal wound or the death of his patient, will appreciate how greatly the welfare of both the patient and himself is enhanced by the assistance of one who can relieve him entirely of that responsibility. Of course the direct responsibility is the surgeon's, and the anesthetist should be accountable to him; but the impatience of the surgeon should not be allowed to hurry the anesthesia, or push it beyond the limits of safety as judged by the anesthetist.

Any general narcotic must be considered as a toxic substance, which is used in surgical anesthesia to the point of partial intoxication, and only the one who is best informed of the depth of the intoxication should govern its degree. The anesthetist and surgeon should work in harmony, however, and the nature of the operation should dictate, other things being equal, the depth of the narcosis. For example, the degree of narcosis required for a plastic operation of the cervix and perineum should not be the same as that required for an abdominal hysterectomy, and yet if, in the plastic operation, divulsion of the sphincter is practiced, the narcosis should be more complete; and such relaxation should not be accomplished by suddenly crowding the anesthetic, but should be gradually induced by the anesthetist, who is conversant with the stages of the operation and knows when the deeper narcosis will be required.

The choice of the narcotic used should depend principally upon the condition of the patient, and to properly judge of this the anesthetist should precede every narcosis by a thorough examination of the patient and her history, including in his examination all laboratory aids available. In this examination the lungs, heart and kidneys should receive special attention, for on them the toxic influence of the drug is most apparent. In this climate ether

is the narcotic of choice, but I think that I detect a growing tendency among surgeons and anesthetists to use more chloroform; and the recent suggestion of Dr. Gwathmey of New York that the chloroform be heated to the temperature of the blood, may enable us to achieve the good results with that drug which our southern colleagues claim.

Ethyl chlorid, ethyl bromid and nitrous oxid are all good for short anesthesias, or may be used preliminary to ether or chloroform.

The method of administration in its technical details is largely a matter of personal habit and preference. Abroad the use of more or less complicated apparatus for administering graduated mixtures of different narcotics with oxygen is almost universal, but I am informed that each anesthetist uses a different apparatus, usually of his own invention, so no one device is universally approved. To my mind the use of a closed face mask into which the patient exhales is a detriment even when oxygen is constantly administered; and if valves are used to obviate this disadvantage, it renders the apparatus too complicated for ordinary use, and too apt to be out of order when most needed. An anesthetist usually finds enough to occupy his attention in attending his patient without the added duties of watching three or four dials, valves and stopcocks; and if he is called to a private residence to anesthetize it would seem unwise to carry such a cumbrous machine with him. Then, too, the physiologic effect of this formidable apparatus on a person already apprehensive of the ordeal she is about to undergo is far from advantageous. Alice Magaw reports 14,000 cases of general narcosis, and after this unparalleled experience recommends the ether drop method on the open mask, and this certainly is good evidence that the simpler method is "as good as the best and better."

She advocates close attention to the little details of the art, for art it is, and attaches especial importance to the effect of the psychologic condition of the patient on the narcosis. In this I wish to most heartily agree, and will even go so far as to say that I consider it one of the most important factors in anesthesia.

The preliminary attentions to the patient are most important. The restriction of diet and purgation are too well known to need more than mention here. The anesthetist should, if possible, have previously examined the patient and secured her confidence; if this

is impossible, his mien as he enters the room should be one of easy confidence and calculated to relieve her dread of the ordeal before her. It is wise to quiet the patient's fears before attempting narcosis. The preliminary administration of some sedative drug is an admirable expedient in the average case. Morph. sulph. gr. 1/6 and atropin sulph. gr. 1/150 are used with advantage by some, but are certainly productive of harm where lung complications are present or threaten. At the General Memorial Hospital in New York scopolamin gr. 1/100 and morph. sulph. gr. 1/6 are given one-half hour before operation. The best drug in my opinion is chlorethane, in doses of five grains every fifteen minutes for three doses, or in one dose of ten grains one hour before operation. With such preliminary medication the patient is less nervous, more easily anesthetized, the amount of narcotic used is less, and what is of great importance, the patient "dozes" quietly after recovery from the anesthetic, and postnarcotic nausea and vomiting are greatly decreased.

In all textbooks the invariable rule is given to remove all artificial teeth from the patient's mouth before anesthesia, but often in old people wearing complete upper and lower plates the removal of teeth causes the cheeks to fall in in such a way as to interfere with respiration, and I have seen cases in which the alveolar processes were so absorbed that when the lower jaw was held up and forward, after the removal of the plates, the lips completely occluded the nasal orifices and effectually shut off the breath. Of course if the plate is small enough to be swallowed or interfere with respiration by becoming dislodged it should be removed, but in all cases common sense and not textbook rules should be our guide.

Having taken all preparatory precautions, the patient should be warned against the irritation of the throat so apt to occur with ether and assured of its harmlessness; the cone should then be lightly applied without any ether and the patient allowed to breathe through it until accustomed to its presence, during which time she should be instructed to breathe quietly through the nose and to keep her mind on something foreign to her operation "so that her dreams may be pleasant." The ether should then be dropped slowly on the top of the cone, or mask, and the frequency of the drops increased as she becomes more tolerant, but the ether should never be poured. In this manner complete anesthesia can be induced

in from five to fifteen minutes and with from one to two and one-half ounces of ether, and with an entire absence of any choking, coughing, struggling or any other unpleasant phenomena. If chloroform or morphine has been given, both the amount of narcotic and time required are greatly reduced.

With very nervous women, or when speed is imperative, ethyl chloride may be sprayed directly into the cone, and the ether dropped as before, thus reducing the time for inducing anesthesia to about five minutes. The patient should be placed on the operating table before the deeper reflexes are lost, and the anesthesia completed while the final cleansing of the operative site is being performed.

During the operation the anesthetist should endeavor to keep the patient at the highest level of narcosis which the operation will allow, and to maintain that level with the fewest variations possible and the least amount of narcotic.

Should the patient be alcoholic or maintain a high arterial tension with secretion of mucus and apparent intolerance of ether, the addition of a few drops of chloroform may reestablish more favorable conditions, when the ether may be resumed. The excessive secretion of mucus which is so frequently encountered with alcoholics and negroes is a disagreeable complication and one which may seriously interfere with an even narcosis. I learned from my predecessor at the Gynecological Hospital a method of obviating this nuisance which I have seen used in no other institution and which may be new to some. This consists in pumping out the excessive secretion by utilizing the expiratory impulse of the patient to blow it through the nose or mouth. The lower jaw is grasped with both hands with the thumbs in front and the fingers around the angle of the jaw on either side. As the patient inspires the jaw is held up and forward, thus closing the mouth, but with expiration the lower jaw is gently but firmly forced downward and backward, thus partially closing the fauces and forcing the mucus through the pharynx and nares in advance of the expiratory wave. In this manner, with the patient's head turned to one side, I have repeatedly seen a continuous stream of mucus coursing over the patient's cheek to a receptacle below, or removed by a towel as it emerged from the nares.

That a narcotized patient should be allowed to swallow her tongue is a reflection on the skill or vigilance of the anesthetist, for that

accident is impossible if he constantly attends to his duty; and yet I have seen teeth pulled to admit the mouth-gag and the tongue held forward by a string passed through its body by anesthetists in large hospitals. I have anesthetized over 700 cases in the past two years, and have never used either the mouth-gag or tongue forceps.

Of the accidents of anesthesia and their treatment I have nothing to suggest, except that the administration of anesthetics by trained anesthetists is sure to decrease their frequency.

The condition of the air in the operating room is very important, and we should be as careful to insure its purity as its warmth. The humidity is a potent factor for good or ill, and is generally recognized as such. I was informed by two Southern surgeons that they postponed an operation of choice in their hospital if the weather was inclement, because of the increased danger from chloroform when the humidity was high. Certain it is that all general anesthetics inhaled as vapors are less well borne in humid weather.

In regard to postnarcotic vomiting and nausea, it is proportional in many cases to the amount of ether-saturated saliva which is swallowed, and in these cases lavage of the stomach gives marked relief. In ordinary cases, however, when ether is given as above suggested, the nausea is reduced to a minimum, and especially is this the case when chlorethane has been previously administered.

Bronchitis and pneumonia, if caused at all by the narcosis, are due generally to either a chilling of the entire body surface by exposure or the administration of cold ether in such proportions that by its evaporation and consequent decrease in temperature it chills the lungs directly. The prevention is obviously secured by ample protection of the patient from draughts, and the drop-method administration of warm ether by a skilled anesthetist.

RÉSUMÉ.

1. Narcosis is too serious a condition to be induced by any but those skilled in the art.
2. The anesthetist and surgeon should work in harmony.
3. The simple drop method on the open cone is the preferable form of administering ether.
4. The psychologic state of the patient powerfully affects the narcosis.
5. It is not always necessary to remove false teeth.

6. New method of "pumping out" excessive secretion of mucus.
7. Mouth-gag and tongue forceps are rarely necessary.
8. The accidents and sequelae of narcosis are best prevented by the drop-method administration of warm ether by trained anesthetists.—*The Therapeutic Gazette.*

SOME NEW IDEAS IN PORCELAIN WORK. By Dr. Lionel M. Homburger, New York City. We all know how impossible it is to accurately fit one of the ready-made porcelain crowns, at present on the market, to the root of a tooth, by means of grinding. True it is that we can build up these crowns to accurately fit the root by means of porcelain, thus making a close-fitting joint. But if we overcome this difficulty we meet another due to the fact that the molds from which these crowns are made are limited in number. Therefore the selection of both shade and shape is not as easy as, for instance, in choosing plain porcelain teeth for vulcanite plates.

For some time past I have employed the following method, which surmounts all these difficulties.

The root is prepared in the usual manner, and then a piece of inlay platinum burnished over the root end. A piece of round iridio-platinum wire, of suitable length, thickness and strength for the post of the crown, is rolled up in some platinum foil in the same manner that a stick of candy is rolled up in paraffin paper. This is thrust through an opening previously made in the platinum over the end of the root. These two pieces are now cemented together with sticky wax, so as to hold them in proper relation. A rubber tooth is now selected of the correct shade and mold, and ground and fitted to the tooth root. This fitting completed, the pins are bent around the post by means of a pair of pliers. The whole is then carefully removed from the mouth and the root of the post invested in equal parts of plaster of Paris and very finely ground silex. The investment is carried up to the platinum floor and then trimmed so that it will stand with the incisal edge of the porcelain tooth pointing upward. The sticky wax is removed and the tooth packed with porcelain of the correct shade, put in the furnace and fused. This is repeated until it has been built up to the required height and contour.

The platinum foil is then peeled off the cervical end of the finished crown and the post is grasped in a pair of flat-nosed pliers and pulled forcibly out of the crown. The bit of platinum foil, which has been wrapped around the post, remaining in the crown, is removed with a small round bur rotated in the engine. The post-hole and the cervical floor are now etched with hydrofluoric acid. The post is roughened by rolling it on a table under a file and it is then cemented into the crown and the root in one operation. The result is a perfectly fitting crown.

For a still longer time I have employed a similar method for replacing broken tips and corners in devitalized teeth, as follows:

The cavity is prepared and a short hole is drilled into the root canal. A matrix is made, and through the matrix an iridio-platinum post, covered with platinum foil as above described, is thrust into the root canal and cemented to the matrix with wax. By taking hold of the free end of the post with a pair of foil carriers the post with the adhering matrix is easily withdrawn from the cavity. This is invested and the porcelain tip is built around the projecting end of the post. When finished the matrix is peeled off, the post withdrawn, etched with hydrofluoric acid and cemented into place.

The great advantage of this form of inlay over one with a solidly baked-in post is that it is stronger.

We all know that the weakest point in an artificial tooth is at the pins. In this respect inlays do not differ materially from artificial teeth, and as a matter of fact they are more liable to fracture, as the porcelain used for inlay work is not so strong as that used for teeth. Even if ground-up artificial teeth are used the inlay will not be as strong, because artificial teeth are molded under pressure and baked by men who do nothing day after day but bake porcelain; whereas inlays are made by men who only occasionally bake porcelain and therefore frequently overbake or underbake the mass.

Knowing this to be true, I deem it extremely ill advised to bake any form of post, pin or dowel into an inlay, unless the same is *absolutely* necessary, and I can say that in the past six years I have never run across a case in which it was necessary.

This being the case, I will give you the method I employ for replacing tips and corners when the pulp in the tooth is alive and healthy.

I recently had the pleasure of seeing one which I had made six

years ago, which not only was in perfect condition, but in the entire time had never come out once.

The cavity is first cleared of all decay, shaped and prepared. At both extremes of the cavity a small hole is drilled into the tooth large enough to accommodate a piece of No. 24 gauge iridio-platinum wire. This is bent in the form of a loop, so that each end will fit into the hole drilled into the tooth. The ends of this loop are now roughened and cemented into the holes of the cavity with zinc phosphate cement. The cement is carried over the entire loop, covering it effectually, the sides being made parallel, or better still, brought to a slight taper. A matrix is made over this entire cement mass either by burnishing or by the impression method (preferably the latter). In this matrix an inlay is built, and when finished the matrix is peeled off and the interior of the inlay roughened with hydrofluoric acid.

With a bur we now remove all the cement around the loop in the tooth, except at the ends where it is fastened. The inlay is now ready to cement into place.

In shallow inlays I give additional anchorage by undercutting the cavity in the porcelain, with carborin (a preparation composed of finely ground carborundum moistened with glycerin). The instruments for undercutting are made from worn out inverted-cone burs, put into the handpiece of the engine, and while revolving are held against a stone until all the blades are ground off. I keep these in various sizes in stock, and by revolving these in the inlay cavity filled with carborin an undercut is quickly effected.

Before closing my paper I will touch upon one more topic, and that is an accurate means of matching teeth with porcelain. The method is not original, but it is very good, and I can thoroughly endorse it, having tried it for some time past.

Whenever you mix up any porcelain colors always weigh out the ingredients on a scale, and jot it down on a note book kept for that purpose. Bake a sample button, or better still, a small piece with a hole in, as this is more easily mounted and preserved. Give each button a number which corresponds with the number in your note book. In making an inlay it is only necessary to select a suitable shade from your home-made shade-guide, refer to the number in your book, and weigh out the ingredients. Provided

you bake at the same temperature, you will always get uniform results.

This method may at first be somewhat irksome, but when you have gotten together a goodly collection, your saving in time will be incalculable.—*Items of Interest.*

THE BIRTH OF AN INLAY. By Dr. R. B. Tuller. The inlay is not such a recent feature in dentistry as some might think.

I would not presume to say I was the father of the first; but I was the father of one many years ago.

I might say I *am* the father, for it still lives.

There wasn't at that time any craze or fad about inlays. I don't know that I had ever heard of one. I was just an ordinary all-around dentist in *those days*—a common slugger of gold.

It must have been about 1890 or 1891, and I had for a patient one of the most nervous and restless women that ever got into a dentist's chair.

The cavity in hand was the disto-occlusal of a right superior bicuspid, and I earned \$100 in the preparation of it; say nothing about filling it with gold. But I did not get the hundred.

In fact, I quit the preparation before I had got it quite as I wanted it, on account of the early beginning and ever increasing kicks and spasms of thrashing around of my patient, oft repeated with verbal accompaniment—"Good Lord! you haven't got to do much of that, have you?"—"Oh, glory! that's worse yet"—"Again?—wuh!"—"Will you *ever* get through boring?"—"No, it don't hurt so much, but it makes me nervous"—"Wooooff! it sets me all on edge. I'd rather have the old tooth out. Wooooff!!!"

Fellow sufferer (dentist), can you imagine my trial? Maybe *you* never got a lemon in your chair. Well, I got mine all right. I'm not sure but it was a lime. At intervals I stepped into my laboratory to wipe away the perspiration and indulge in silent prayer. Sometimes it was muttered indistinctly—but *I* understood it all right.

Finally I got to a point where I said to myself, "It isn't as well prepared as I would like, but I guess it will do. It has *got* to

do." Of course *you* wouldn't quit like that and never did; but *you* never had that patient.

Anyway, I felt like slugging something, and I began slugging gold. The patient thought it an agreeable change—at first; but as time went on she got nervous again and began to sigh and flinch before the blow came and groan afterward. I'd carry a piece of gold up there and be just on the point of nailing it fast, when she'd flinch and I'd miss and the gold drop. That happened about ninety-seven times, and about that many times I bit my tongue and kept serene.

Then she soon began to move her head every time I reached for gold, and I'd have to readjust it before I could place the pellet. Seventy-nine times I took her head off the horn and gently placed it in the center of the headrest. To be candid, I felt like slamming it.

Fellow sufferer (dentist), did you ever—? Oh, well, never mind. But you've had 'em keep asking every three minutes by the clock: "Aren't you nearly done, doctor?"—"How much longer will you be?"—"My! if I'd known it was going to take so long I'd never have had it done."—"How much more?"

Well, the hours wore on—yes, hours. It took me over two hours to fill that hole up, not to mention the prior preparation; but at last it was ready to finish up. Then my frazzled patient drew a long breath, raised up and thanked God, but not His agent who had put some life blood into the work. I didn't worry over that, but mentally and fervently echoed the sentiment.

But of course I couldn't leave it just that way; so, in mellifluous tones—oh, I was mellifluous through it all, though of a waspish kind as far as my innermost feelings dare feel—I remarked that we'd just finish it up the least possible and then do the rest next time.

If she had said, "They ain't goin' to be no next time," it wouldn't have surprised me much. Anyway, I hazarded a throw on it, and it was well I did, for I soon discovered on getting to work that there had *got* to be a next time for someone if not for me. A few strokes around the filling showed me it was a *removable* filling. It wouldn't drop right out, but I pushed it out.

And then I pushed it back and retired to my laboratory to

again wipe away the perspiration and—think, and think quick. Not for the hundred spot cash—that I earned in the preparation of cavity—would I have told my lady just *then* that the work was all a failure; and so it was up to me to in some way pass it along until the next day at least, when I might have a chance to sidestep a little and say: “Oh, you must have bitten on a *crust* or something. Of course, if you did that before it was finished, why—”

Just then my eyes fell on a package of quick-setting cement, and I never mixed any quicker in my life. Gathering it on a toothpick and concealing it in the palm of my left hand, I went back to the chair with an air of knowing just what move to make next without hesitation. And I did know. I pushed the filling out and the cement in, and then pushed back the filling; but it stuck half way.

Then reaching for my automatic plunger, I said: “Have got to condense this just a very little in one place.” There was a groan, but a couple of taps sent it home.

I then drew a bit of thread through behind, wedging the filling in. This enabled me to cut it down occlusally, to be safe as to occlusion, and to disk the sides some and burnish margins. With a warm burnisher I hastened the setting of cement and at the same time cleaned away the surplus.

Leaving a bit of the thread wedge in, I removed dam, and with a few happy remarks dismissed patient until next day.

Whether I slept well or had troubled dreams that night I do not remember, but as the hour approached next day I was troubled. Still, I thought she'd come back fresh and could stand the shock I felt was in store better than when she was all frazzled out.

She was cheery when she came and had forgotten much, and maybe forgiven; but how would it be when—

Well, I cautiously tried the filling and its firmness decided me to put off the confession as long as possible; so I set to work with disks, strips and trimmers, looking for disaster every minute.

At length I found the filling, looking like the real thing, but I tried it again. It was there. Had her bite something hard on it, and it was there.

Now, what is the use, said I to myself, of bringing on trouble before its time; so the woman went away very well pleased and proud, and I was saved humiliation, for a time at least. It hasn't brought humiliation yet, and I've seen it often and recently.

It wasn't a failure, but the birth of an inlay. Through hours of confinement, labor and travail, a decidedly fine golden inlay was born. It weighed less than a pound. I was the doctor and accoucheur, and—well, and the proud father as well.

The child is now about 17 years old and healthy.

It bids fair to live—well, until pyorrhea gets into the neighborhood, or death takes it as a shining mark to the graveyard. And I think it will be on deck at the resurrection.

I'm still making inlays, but not the same way. That was a good way—anyway, a good inlay—but it was a little teejous. Me for the cast inlay in future. It is a filling of high caste, and don't frazzle your patient quite so much.—*American Dental Journal.*

Correspondence.

Editor, DENTAL DIGEST.

Dear Sir—The October *Cosmos* contains (page 1112) an appeal by the Committee on the History of Dentistry of the National Dental Association which ought to be repeated by every dental journal and voiced in every dental society until its purpose is accomplished.

More than two years ago "Dr. Vincenzo Guerini of Naples, Italy, well known as a dental historian and archeologist, had placed at the disposition of the committee the result of his labors in the field of dental history, which has formed a large and important part of his life-work." This is "a comprehensive history of dentistry from the earliest times down to the early days of the nineteenth century.

"It was the desire of the distinguished author to bring out this book under the auspices of the National Dental Association as a material expression of his appreciation of the contributions which America had made to the progress of dentistry as a profession."

This tribute of the author was welcome to the Committee on History, "not only because of its exceptional merit and the generous sympathy which it expressed, but, further, because it furnished in available form and at once the result for which the committee had been created, and for which the members were individually and collectively laboring.

"The National Dental Association formally accepted this trust, and pledged its moral support to the enterprise of securing as soon as possible the publication of the work of Dr. Guerini."

No publisher could be found who would undertake the supposed financial risk of its publication and the committee determined to solicit subscriptions in order to secure the cost of its publication in advance. This requires 700 subscriptions at five dollars per copy. "The present total number of subscriptions received by the treasurer is 550, leaving 150 yet to be obtained before the work of publication will be undertaken."

Of course, there must be more than 700 dentists in the United States who would desire such a work as this enough to pay the subscription price, but the time has come to put the matter on other grounds also. It should be considered a point of honor by the dental profession, and every man to whom this appeal comes should seriously consider whether his circumstances will possibly permit him to give five dollars for the permanent preservation by publication of this history, which the better part of a lifetime has been spent in getting together. When once in his possession it is not conceivable that any man can fail to be interested in its perusal.

I have just been informed by the secretary of the National Dental Association that the costs of printing and binding have so much increased that it may now require 800 or more subscriptions, instead of 700, which would have been sufficient two years ago.

E. NOYES.

Chicago.

The Dental Digest.

PUBLISHED THE LAST WEEK OF EVERY MONTH

At 2231 Prairie Avenue, Chicago,

Where All Communications Should be Addressed.

Editorial.

ACCURACY IN EVERYTHING.

We cannot conceive of any occupation which requires accuracy in its fullest sense more completely than the practice of dentistry. The proper accomplishment of any operation in the mouth requires the minutest detail and careful consideration, and this accuracy of manipulation and detail of each operation performed, as well as the care and instruction given to the patient, calls out thought. Therefore a dentist must think in order to accomplish thoroughness, and this in turn strengthens his character; on the other hand, carelessness and thoughtlessness in service are sure to react. In the first place the operation is almost certain to fail and in time create dissatisfaction. It also leads up to additional carelessness; for once the bars are let down and service carelessly performed this tendency is very apt to increase, and it is from this line of reasoning that we believe we can account for the failures, or rather the lack of success, in so large a percentage of men who are attempting to make a livelihood by the practice of dentistry. Therefore, thoroughness and thoughtfulness are two great essentials to a successful practice.

We also wish to apply this same line of reasoning to what men say in their discussions with patients as to what should be done. The dentist is too frequently careless about the instruction to his patient and the discussion of what is required. We believe that it is profitable to have the patient understand during the process of different operations just what is being done and the reasons therefor. This is bound to cause additional interest on the part of the patients and therefore make them more in earnest

and increase their desire to have the right thing done at the right time.

We wish to apply this same rule to society proceedings and to the many papers written that lack thoughtfulness, but more particularly do we wish to refer to the discussions that many times follow papers read in societies. We were recently at a meeting where most of the discussion, following the reading of the paper, was very inaccurate and thoughtless. The subject of the paper was "Cause of Dental Caries." One of the first to enter into the discussion was a prominent college man, teaching in one of the leading colleges, who made the broad statement that he believed much more injury was done to the teeth by the use of the tooth-brush than good accomplished. He may have been influenced in this by the fact that he had that day examined one of his patients, who, being right-handed, brushed the teeth more on one side than on the other and did injury to the teeth on the side which was more easily brushed. Nevertheless, the statement was inaccurate, unscientific and incorrect. No proofs were produced to back up this statement, and we are positive he was wrong and that the majority of patients do not use the brush nearly enough, and much of the time unskillfully, and this injudicious use of the brush by the patients is traceable in many instances to the lack of thoroughness on the part of the practitioner in his instruction to them in this particular. It is an exception to the rule when we find an individual whose teeth are thoroughly cleansed or as well cleansed in this particular as they could be.

The next speaker to whom we wish to refer briefly was also a prominent college man of high intelligence, and he made the assertion that he did not believe in the use of medicines; that he told his patients they should not use medicines; that medicine was used only when people were sick, and that the mouth was not sick. We wish to take exception to these statements. First, the mouth is sick. It is very rarely that we find a mouth that is absolutely healthy and, therefore, that is not sick. Furthermore, there are many medicines if properly applied that are beneficial and should be employed. There is a tendency in this connection

for a class of men to condemn all mouth-washes and preparations because there are some on the market that are advertised in an objectionable way, or for some other reason yet unexplained. A proper mouth-wash or tooth powder is one of the useful adjuncts to the patient in the care of his teeth, if properly used, and is better than a poor dentist.

The next speaker took the position that much injury was done by the use of instruments in the removal of deposits around the necks and from the roots of teeth in cases of pyorrhea; that the tearing away of the tissue by the use of instruments was very injurious in that the gingival organ never was restored to normal and left pockets favoring additional deposits; that many cases of pyorrhea could not be cured. We agree with these statements that much injury is done by the tearing away of the tissue and that there are many cases where pyorrhea has progressed so far and where the condition of the patient is such that the case cannot be cured and the teeth are bound to be lost; but this speaker was careless in that he gave no remedies nor substitute for this abuse, and he must have left the impression on the minds of those who did not know to the contrary that he did not have much faith in the treatment of this disease, and yet this gentleman, we are confident, is one of the most successful men in this line, quite as much so as anyone we know.

There were other speakers who took up the procedure now advocated of having every patient come once a month or thereabout to have their teeth polished with orange wood and pulverized pumice. We have yet to see or hear of a well described plan of procedure for this work. To have the patients come to the office at stated intervals and receive instruction is a very essential thing, and very beneficial if they are shown what to do themselves when away from the office. Simply to perform the operation of cleaning the teeth and massaging the gums once a month, then having the patients go away without being impressed with the importance of following up this treatment and procedure themselves each day would not accomplish much, and here again comes in the need of this thoroughness in the instruction of the patients. There has been considerable said and

written on this line of treatment. But from investigation of the subject and the line of procedure advocated we are positive that the great good that comes from it is the impression made upon patients in the way of influencing better care on their part, rather than from any magical benefits to them growing out of these monthly visits.

Time will not permit us to go into the details of the various phases of practice calling out this accuracy and thoroughness, but in general we believe it is the keynote to all success, not only in the practice of dentistry but in life generally, but especially in dental practice for the reasons herein mentioned. J. N. C.

Notices.

LA SALLE (ILL.) COUNTY DENTAL SOCIETY.

The annual meeting of the La Salle County Dental Society was held at Princeton in October, 1907, and the following officers were elected: President, L. E. Jordan, Ottawa; Vice-President, H. M. McKee, Princeton; Secretary-Treasurer, P. J. Stordock, Ottawa.

DISTRICT OF COLUMBIA BOARD OF DENTAL EXAMINERS.

The semi-annual examination of the Board of Dental Examiners of the District of Columbia will be held Jan. 2, 3, and 4, 1908. All applications for examination must be accompanied by a fee of \$10.00 and should be filed with William B. Daly, Secy., 1340 New York Avenue, N. W., Washington, D. C.

NEW LONDON (CONN.) COUNTY DENTAL ASSOCIATION.

The annual meeting of the New London County Dental Association was held at New London, Conn., Oct. 7, 1907, and the following officers were elected: President, W. S. Smith, Mystic; Vice-President, R. H. Keeler, New London; Secretary, J. Otis Miner, New London; Treasurer, W. W. Leonard, Norwich. Executive Committee—A. W. Crosby, New London; A. H. Spicer, Westerly; S. D. Leonard, Mystic.

NORTH EASTERN DENTAL ASSOCIATION.

The thirteenth annual meeting of the North Eastern Dental Association was held at Portland, Me., Oct. 16, 17 and 18, 1907, and the following officers were elected: President, E. B. Griffith, Bridgeport, Conn.; Vice-Presidents, Ned A. Stanley, New Bedford, Mass.; Henry A. Kelley, Portland, Me.; Secretary, Charles F. Kreppel, Windsor Locks, Conn.; Librarian, Charles E. Riggs, Hartford, Conn.; Editor, David Mansos, Burlington, Vt.

SOUTHERN ILLINOIS DENTAL SOCIETY.

At the twenty-second annual convention of the Southern Illinois Dental Society, held at East St. Louis, in October, 1907, the following officers were elected: President, C. B. Rohland, Alton; Vice-President, P. B. Lessemann, Litchfield; Secretary, H. J. Barnett, Alton; Treasurer, A. O. Strange, Litchfield.

SOUTHWESTERN IOWA DENTAL ASSOCIATION.

The annual meeting of the Southwestern Iowa Dental Association was held at Creston, Iowa, Oct. 10, 1907, and the following officers were elected: President, F. S. Schadel, Red Oak; Vice-President, J. W. Powell; Secretary, T. H. Will, Red Oak; Treasurer, G. E. King, Villisca. The next meeting will be held at Clarinda.

NORTHERN ILLINOIS DENTAL SOCIETY.

At the twentieth annual meeting of the Northern Illinois Dental Society, held at Rockford, Oct. 16 and 17, 1907, the following officers were elected: President, A. M. Harrison, Rockford; Vice-President, C. J. Underwood, Elgin; Secretary, C. L. Smith, St. Charles; Treasurer, H. C. Logan, Aurora. The next meeting will be held at Freeport.

SOUTH DAKOTA STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the South Dakota State Board of Dental Examiners will be held at Sioux Falls, S. D., Tuesday, Jan. 14, 1908, beginning at 1:30 p. m. All persons desiring to take this examination must make application to the secretary, and send fee of \$10.00 at least one week prior to the above date. No candidates will be received for examination who do not make application as above specified. Applicants are required to bring dental engine, filling materials, articulators, teeth, and all appliances necessary to do crown and bridge work.

G. W. COLLINS, Secy.,
Vermillion, S. D.

LATEST DENTAL PATENTS.

- 866,753. Head-rest, Henry E. Weber, Canton, Ohio.
- 866,962. Swage for dental crown plates and similar articles, Carl Rauhe, Düsseldorf, Germany.
- 866,963. Dental bur, Carl Rauhe, Düsseldorf, Germany.
- 867,017. Tooth powder receptacle, Herman L. DeMond, Philadelphia, Pa.
- 867,062. Toothbrush, Orville C. Lillie, Conneaut, Ohio.
- 867,063. Rotary toothbrush, Orville C. Lillie, Conneaut, Ohio.
- 867,193. Dental soldering apparatus, Edward Flannigan, St. Louis, Mo.
- 867,264. Dental implement, Charles S. Evans, Dayton, Ohio.
- 868,109. Making artificial teeth, Joseph Morris, North Wales, Pa.
- 868,628. Dental regulator and spacer, Eben M. Flagg, New York, N. Y.

News Summary.

W. E. HIGHNOTE, long a practicing dentist of Clinton, Mo., died Oct. 10, 1907.

HARRY ECHINAW, a young dentist of Marshalltown, Ia., died suddenly in October, 1907.

A. D. PENNY, 65 years old, a dentist formerly of Carrollton, Ill., died at Red Bud, Oct. 31, 1907.

WM. P. WELSH, 60 years old, a well-known dentist of Baltimore, Md., died from cancer, Nov. 3, 1907.

WM. C. DRAKEFORD, a prominent young dentist of Huntsville, Ala., died at Asheville, N. C., Oct. 11, 1907.

T. A. GOODWIN, 60 years old, a practicing dentist of Warsaw, Ind., died of Bright's disease, Oct. 26, 1907.

WM. H. MCGRATH, 76 years old, a practicing dentist of Philadelphia for many years, died Oct. 9, 1907.

HANFORD THAYER, 50 years old, for twenty-six years a dentist of St. Louis, died from pneumonia, Oct. 28, 1907.

F. D. SHERWIN, 43 years old, one of the leading dentists of Lincoln, Neb., died after a long illness, Oct. 18, 1907.

GEORGE L. PAYNE, 86 years old, for 50 years a practicing dentist of Xenia, O., died at Washington, D. C., Oct. 18, 1907.

ALFONSO WHEELER, 90 years old, once official dentist to the court of Dom Pedro of Brazil, died from pneumonia, Oct. 27, 1907.

JOHN H. ELDRED, a prominent and successful dentist of Norwich, Conn., died suddenly from neuralgia of the heart, Oct. 20, 1907.

WARREN S. REYNOLDS, 31 years old, a well-known young dentist of Hyde Park, Mass., died from typhoid fever, Oct. 23, 1907.

LEWIS L. WARREN, 39 years old, a leading dentist of Shirley and Leominster, Mass., died, following an operation for an intestinal obstruction, Oct. 6, 1907.

WM. M. HUNT, 43 years old, a prominent dentist of Washington, D. C., and President of the Dental Society of the District of Columbia, died Oct. 20, 1907.

FREDERICK BRADLEY, 58 years old, an instructor in operative dentistry at Harvard until obliged to retire because of ill health, died at Newport, R. I., Oct. 24, 1907.

AMERICAN DENTIST A SUICIDE.—Dr. F. R. Cross, an American dentist well known in Panama, committed suicide Oct. 25 by shooting himself through the head. Despondency is given as the cause.

"I don't kare how much a man talks if he only sez it in a few words."
—JOSH BILLINGS.

HEAVENLY?—"Do dentists go to heaven, Willie?" "Sure. They lets 'em in so's they kin put gold crowns on the angels."

TELL THE TRUTH.—The Dentist—"Now, open wide your mouth and I won't hurt you a bit." The Patient (after the extraction)—"Say, Doc, I know what Ananias did for a living now."

CANCER CAUSED BY WEARING MISFIT ARTIFICIAL TEETH.—Suffering from cancer that developed from a sore caused by wearing misfit artificial teeth, Mrs. William Reitenauer of Eshbach, Pa., literally starved to death.

CHARLES E. MONKS, 38 years old, a dentist of New Britain, Conn., died from blood poisoning, contracted in relieving a patient's suffering from a diseased tooth. The dentist plunged one of his instruments into the palm of his hand.

GOES WITH A SHAVE.—Myer—"I had a tooth extracted yesterday and the dentist gave me gas." Gyer—"That's nothing. Every time I get shaved the barber gives me a lot of gas."

HOW TO TAKE A BITE.—Place small ring of wax near distal margin of bite-plate and instruct patient to hold tip of tongue in this ring when closing jaws.—C. E. JENKS, D.D.S., *Dental Summary*.

HONOR TO DR. EUGENE S. TALBOT.—Eugene S. Talbot was elected First Honorary President of the International Stomatological Congress, which met in Paris, France, August 8, 1907.—*Jour. Amer. Med. Assn.*

UNDECIDED.—Reporter—To what do you attribute your great age?

Oldest Inhabitant—I bain't sure yet, sir. There be several o' them patent med'cine companies as is bargainin' with me.—*Buffalo Med. Journal*.

FIRE.—Dr. Husted, San Jose, Cal., Oct. 12; loss, \$500.—Dr. F. M. Rose, Del Rio, Tex., Oct. 2; loss, \$1,500.—Dr. E. E. Paxson, South Bend, Ind., Oct. 22; loss, \$105.—Dr. M. E. Gale, Hankinson, N. D., Oct. 31; loss, \$1,200, with \$1,000 insurance.

CORRECT.—If the glaze is sand papered from a porcelain crown it is soon colored by the debris of the mouth and conforms more exactly to the color of the adjacent natural teeth. With the glaze on a slight difference is always readily detected.—*American Dental Journal*.

PHYSICAL MORALITY.—Perhaps nothing will so much hasten the time when body and mind will both adequately be cared for, as a diffusion of the belief that the preservation of health is a duty. Few seem conscious that there is such a thing as physical morality.—HERBERT SPENCER.

MOVING PICTURES INJURIOUS TO EYES.—The cable states that the police in Berlin are making war on moving picture shows, as medical authorities assert that they are injurious to the eyes. There are 200 cinematograph theaters in Berlin and its suburbs. The incessant movement of the films is regarded as especially harmful for children's eyes.—*Jour. Amer. Med. Assoc.*

INBORN.—Victim—"Say, where did you learn to draw teeth, anyhow—in an art school?" Dentist—"No! It came natural. I've always had more or less of a pull in this precinct ever since I was a kid."

CHEERFULNESS.—There is no drug which can compete with cheerfulness. A jolly, whole-hearted, sunny physician is worth more than all the remedies in an apothecary shop. A writer known for his cheerful sayings received a letter from a lady, stating that one of his humorous poems had saved her life.—*Success Magazine*.

GEORGE L. FIELD HONORED BY HIS FELLOWS.—Oct. 26, Detroit dentists gathered at the Fellowship Club to do honor to the Nestor of their profession in that city, George Lindsey Field, who has just retired from active work. The meeting took the form of a banquet and music and toasts were indulged in.

BAN ON CONSUMPTIVES IN TEXAS.—The state health officer announces that the governor will shortly issue a proclamation declaring tuberculosis to be a contagious disease, and making it a statutory offense punishable by a fine of \$500 to bring a person afflicted with the disease into the state.—*Jour. Amer. Med. Assn.*

THYMOL IN TOOTHACHE.—In toothache arising from a hollow tooth thymol has been advised. The cavity is filled with a pellet of cotton wool on which a few grains of thymol have been sprinkled. If any irritation of the mucous membrane is caused it can be checked by rinsing the mouth with warm water.—*London Hospital*.

APE IN DENTIST'S CHAIR HAS TEETH COLD CAPPED.—The Japanese ape "Cocoa" spent part of Oct. 23 in a dentist's chair in Worcester, Mass., having his teeth capped with gold. The cuspid on the left side of the lower jaw was crowned and the preliminary work done for the corresponding tooth in the upper jaw. "Cocoa" appeared to enjoy the experience.

A MONUMENT TO THE MEMORY OF DR. HORACE HAYDEN.—The founder of American dentistry as a profession, in 1839, was Horace Hayden, and be it said to the credit of American dentists living in the Connecticut Valley at the present time, that this year will see unveiled in the town of his birth, Windsor, Conn., a monument to his memory.—DR. A. J. FLANIGAN, *Items of Interest*.

ILLEGAL SALE OF COCAIN.—The Kentucky State Board of Pharmacy has called the attention of the secretary of the State Board of Health to the need of cooperation in the campaign against illegal sale of cocaine. The Kentucky Board of Pharmacy has, it is said, been greatly handicapped in its work by some physicians who have not only been prescribing cocaine, but have prepared powders composed largely of cocaine, which they have sold to their patients who are addicted to the use of it. Dr. J. N. McCormack, secretary of the State Board of Health, has promised the Board of Pharmacy its hearty support. Five Louisville druggists have already been indicted for selling cocaine without a prescription.—*Jour. Amer. Med. Assn.*

FRIENDSHIP.—The holy passion of friendship is of so sweet and steady and loyal and enduring a nature that it will last through a whole lifetime, if not asked to lend money.—*MARK TWAIN.*

TRIES TO SHOOT OUT TOOTH.—Frank Zaymosale, a coal miner of Pittsburgh, has no faith in dentists. For two weeks he suffered toothache and decided to "shoot" out the troublesome molar with a 38-caliber revolver. His aim was not good, and the bullet plowed through his jaw bone and sank at the base of his brain. He is at the Mercy hospital and will not survive.

DENTISTS NEEDED.—There is a good chance for graduate dentists to obtain places on the eligible list with a view of being appointed dental surgeons in the army. A competitive examination will be held at West Point and San Francisco in November. There are no vacancies now, but it is expected there will be within a few months. At the last examination no candidates were found qualified.—*Louisville Courier.*

ATTENTION TO THE HANDS.—Too much attention cannot be given to the hands. First, thoroughly washed, the nails trimmed, polished and cleaned; for what can be more repulsive than to see the fingers draped in mourning going into the mouth of a sensitive, critical patient? While on this line I will say, a drop or so of a pleasing antiseptic upon the hands may not be out of place.—W. S. ROSEMAN, D.D.S., *Dental Summary.*

A TESTIMONIAL TO DR. L. P. HASKELL.—A testimonial banquet was tendered to Dr. Loomis P. Haskell of Chicago by the dentists of Bangor, Me., July 23, twenty dentists being present. Dr. Haskell was born in Bangor, 81 years ago, and to-day he is one of the most eminent dentists in the country. He recently addressed the Maine Dental Society in Rockland and decided to visit his old home in Bangor.—*Dental Summary.*

EDUCATE THE PARENTS.—A large majority of the parents seem to think that treatment and general care are useless in the case of the first teeth, because in any event they must soon be lost. When it is shown to them in the proper light—that the child cannot masticate properly unless he has good teeth, and also the reasons why the deciduous teeth should be retained until the time for the eruption of the permanent ones—it seems to awaken a new interest in their minds.—F. W. BROWN, D.D.S., *Dental Cosmos.*

AN ORDER IN EVANS CASE.—Judge Anderson of the Orphans' Court, Philadelphia, has issued a decree directing Alice D. Gibson, a minor, and a beneficiary in the estate of Dr. Thomas Evans, the American millionaire dentist who died in Paris, to cooperate in the execution of the settlement agreement of the estate. Miss Gibson is a granddaughter of one of the executors of the estate, and the consent of all the children of deceased executors is required to obtain the release of the \$700,000 comprising the estate which is under attachment in the French courts. The money was derived from the sale of Paris real estate formerly owned by Dr. Evans, and when released will go to the trustees of the Evans Museum.

LIVELY PLACE.—Stranger.—“What sort of an establishment is that across the way?”

Native—“Oh, it’s a place where drawing, music and dancing are taught.”

Stranger—“Ah—a young ladies’ seminary, I suppose?”

Native—“No; a dental college.”—*Exchange*.

SOLDIERS MUST CLEAN TEETH.—The French soldier is going to be made to clean his teeth—thanks to a decision of M. Cheron, under-secretary of war, who finds in one year 1,900 men in hospital with dental affections, necessitating 18,000 days’ treatment. M. Cheron intends to enforce many other rules of hygiene in the army, particularly in the case of young recruits, who are notably neglectful in the proper care of their health.

THE IRREPRESSIBLE.—Mark Twain once received a letter from his brother, who complained that he was afflicted with a boil and the jumping toothache at the same time, and inquired if he had ever heard of a worse combination. “No,” wrote the sympathetic “Mark,” “and I can imagine only one that might be worse—that would be to have inflammatory rheumatism and St. Vitus’ dance at the same time!”—EDITH BROWNELL, in April *Lippincott’s*.

LOCAL ANESTHETIC.—

B Cocainae hydrochloridi.....gr. 1-6

Adrenalinii chloridi (1:1,000 sol.).....m.i

Extracti hamamelis destillatae q. s. to fill syringe.

Sig. Inject as local anesthetic.

—W. CLYDE DAVIS, D.D.S., *Items of Interest*.

PRESERVATION OF THE TEETH IN PREGNANCY.—Barton C. Hirst, in the *Therapeutic Gazette*, states that in order to preserve the teeth the pregnant woman should use milk of magnesia as a mouth-wash morning and evening, and take a course of syrup of calcium lactophosphate, 2 drams (8.occ.) three times a day, for two weeks at a time, off and on during the whole period of gestation.—*Jour. Amer. Med. Assoc.*

TEETH AT TWO WEEKS OLD.—Two weeks of age and with two fully developed teeth is the unique phenomena of the babe of Mr. and Mrs. W. H. King of Des Moines, Ia., according to newspaper report. At birth the child’s gums were normal, but the teeth developed before the child was two weeks old. At this extreme young age the babe was compelled to undergo a dental operation for the removal of these malformations or forced growths.

BENT WIRE CLASPS.—The greatest improvement in clasps as plate supports consists in forming them of round or half-round platinous gold wire bent upon itself or doubled and so shaped as to include in its grasp as much of the circumference of the tooth as clasps usually do.

This open or bent wire clasp by its form possesses the peculiar advantage of having one of its folds just above the greatest diameter of the crown, and the other just below it. By this means the tooth is not only more firmly grasped, but the clasp, by virtue of its shape, can neither slip up toward the gum nor down toward the occlusal surface.

This form of clasp is far more correct in principle than the former kind where the flat surface of the clasp, in contact with the convex surface of the tooth, was intended to afford the desired resistance.—S. H. GUILFORD, D.D.S., *Stomatologist*.

A DENTAL BILL.—Kind Lady—"Why, what in the world is this, my poor man?"

Gritty George—"A bill for dental work, mum."

Kind Lady (aghast)—"Bill for dental work?"

Gritty George—"Yes, mum, I just extracted four of yer bulldog's teeth when he wouldn't let go."—*Exchange*.

COMPULSORY DENTAL EXAMINATION.—I have always claimed that if we have the right to send examiners into the schools for the purpose of examining the eyes, for the purpose of vaccinating the children, or for any other purpose, we should have as much right to insist that the mouths of the children be examined and the pupils given instruction as to the manner of properly caring for their teeth.—JAS. McMANUS, D.D.S., *Dental Cosmos*.

EDDYITE ARRESTED.—Clarence Byrne, an Eddyite, whose 6-year-old daughter died without medical attention, was arrested at the instance of the coroner on the charge that he failed to furnish medical attention for his child when she was dying of bronchopneumonia. At the inquest the man testified that ten of his children and his wife had died since he had taken up the faith, and that none of them had received medical attention until a few moments before death.—*Jour. Amer. Med. Assoc.*

EXAMPLES OF PETRIFICATION RE.—Examples of the petrification of human bodies are comparatively rare, although the metamorphosis of animals and plants is common. Two of the best-known examples of human petrification were two bodies found in the island of Guadaloupe. One of these, apparently that of a woman, found a resting place in the British Museum. The other, a better specimen, found in the early part of the last century, was placed in Paris.

According to a description given in 1824 by James Parkinson, a Fellow of the Royal College of Surgeons, the cranium of this body is lacking, but a part of the upper jaw, with some teeth, remains. It was in a bent position when found hidden in calcareous stone. The formation of the bones is perfect. The vegetable markings in the strata from which the bodies were taken indicate that they come from a comparatively recent age.

DIET AND TEETH.—If people were a little more careful about their teeth they would not need to be so careful about their diet, says the eminent scientist, Sir Frederick Treves. This statement was made in a recent address to the students of the Royal Dental Hospital and the London School of Dental Surgery, and the audience was reminded that this is an age of wild fads in relation to diet. The meat eaters and the vegetarians, and the people who subsist on a diet of water and nuts; the people who will drink only at meals, and others who will drink only before or after

meals were described as among the faddists; and it was evidently the opinion of the English doctor that neglect of the teeth was often primarily responsible for the digestive conditions which give rise to the multiplicity of dietary systems.

SALIVATION.—A good remedy, according to Burnett (*Medical Summary*), is as follows:

B	Potassii chloratis	
	Chloralis hydratis	aa gr. xxx
	Phenolis liquefacti.....	m xxx
	Aqua	q. s. ad. 5vij
M.	Sig.—Use as a mouth-wash.— <i>Dental Cosmos</i> .	

EXAMINE MOUTHS OF SCHOOL CHILDREN.—In New Jersey a committee of twenty dentists, appointed by the state society, have succeeded in a number of places in securing permission to examine the teeth of the school children. Duplicate charts are made out, one being left with the principal of the school; the other is sent to the parent, if dental services are required, suggesting that the child be taken to the family dentist to have the necessary work done.—A. W. CROSBY, D.D.S., *Dental Cosmos*.

CORRECTING OCCLUSION.—If occlusion is found not to be correct when teeth are tried in on wax, get the jaws in proper occlusion with the teeth in; then take a small roll of softened compound and take an impression of the buccal surfaces of the bicuspids and molars on each side, shell and remove; then place wax plates into impressions and remount on articulator, which gives you the correct position of the models; then rearrange the teeth.—J. B. JORDON, D.D.S., *Dental Summary*.

COCAIN ANESTHESIA FROM TAMPOON IN NOSE.—Insert in the nose a tampon moistened with cocaine—a five or ten per cent solution—and in from fifteen to twenty minutes anesthesia will be developed in the teeth and gums below the nasal fossa. The anesthesia is most intense about the thirtieth minute. The tampon is then removed, the anesthesia persisting for fifteen minutes longer, gradually subsiding. It is amply sufficient for operations on the teeth.—ESCAT AND LEDEREN, *Jour. Am. Med. Assn.*

METABOLISM.—The discussion of tissue changes from what would be considered a normal functional activity to that of abnormal one is a phase of biologic science that is little known other than being classed under the head of metabolism. When speaking of metabolism we mean life itself, because without the proper quantity and quality of proteids, carbohydrates and fats, properly dissociated into the division minute enough to be carried throughout the entire body and deposited in the respective tissues, it is impossible to have living substance. There are a large number of things that may interfere with the proper metabolism of the body, and, as we have previously stated, certain tissue changes will be brought about that manifest themselves in what we designate as pathologic changes.—GEO. W. COOK, D.D.S., *Amer. Dent. Jour.*

ETHICS.—It is said by someone that "Ethics is the science or the study of what ought to be." Perhaps it is, in its simplest form, the study or the science of what ought to be, so far as indicated by our conduct. It is not difficult to know what ought to be when we are alone and when we are studying, perhaps, in our schools, but when we are out in the world and come within strong competition, then it is that we have to decide what is right and what is wrong.—PRES. H. B. BROWN, VALPARAISO UNIVERSITY, *The Bur.*

CANKER SORE MOUTH.—Dr. J. E. Power considers aromatic sulfuric acid, full strength, almost a specific for this trouble, and he at the same time prescribes internally the following:

R.	Tincture ferri chloridi.....	m. x
	Potassii chloratis	gr. iii
	Aquaे	f 3 ss

M. Sig. A teaspoonful every three hours in lemonade.—*Items of Interest.*

DENTAL CLINIC ESTABLISHED IN A NEW YORK INDUSTRIAL SCHOOL.—A dental clinic has been established in the Fifty-third Street Industrial School and has the financial support of the Children's Aid Society. The teeth of the children in this school are not only examined, but inflamed gums and putrescent pulps are treated, teeth filled, and, when necessary, teeth are extracted. The fillings are plastic only. Statistics already obtained by the committees show that seventy-six per cent of the children have never been to a dentist.—A. W. CROSBY, D.D.S., *Dental Cosmos*.

COMBINATION GOLD AND CEMENT FILLING.—Intended to be used especially in frail teeth, having frail labial plates, or where retention form is not adequate, but can be used advantageously in any cavity, where gold filling is desired.

Prepare cavity in usual way, and line same with cement about consistency for crown-setting. While cement is soft, press into cavity a piece of mat gold, such as Vernon's, Keeton's or moss fiber, that is just large enough to fill same. Condense gently and remove any excess of cement at margin. Continue placing in gold until all cement is covered, each time condensing more thoroughly. Pack with a good body of gold into retentions. The filling can be finished with any gold desired.—B. D. RIVERS, D.D.S., *Dental Summary*.

A CASE OF RESECTION OF ROOT OF UPPER LATERAL INCISOR.—The patient gave a history of a chronic abscess during the previous nine months, and an acute exacerbation during the last month, as a result of which the bone of the process between the roots of the lateral and cuspid became necrosed and was removed. Examination at the time of this operation showed the end of the lateral root and considerable of its distal surface to be denuded of pericemental membrane. A root filling had been previously made. A portion of a solution from a tablet of cocaine $\frac{1}{2}$ grain, morphin $\frac{1}{8}$ grain, and atropin 1-200 grain, was injected into the soft tissues over the root. An incision

about three-quarters of an inch long was made through the gum to the bone at right angles to the length of the root, the periosteum was lifted from the bone and the root exposed. The end of the root was then cut off with a fissure bur and was found to be covered with serumal calculus. The surrounding bone was found to be carious and was curretted. The cavity was irrigated and packed with iodoform gauze.—DR. A. D. BLACK, *The Bur.*

LAWSUITS.—A Kansas dentist broke the jaw of one of his patients, and now the patient is suing for \$18,000 damages. In his petition he claims that he has been "totally incapacitated."—Damages to the amount of \$400 were awarded a man in London, Ont., whose jaw had been broken in a dental operation. He had sued for \$500 for unskillful treatment.—A dentist in Norwalk, O., was recently exonerated by a jury in a \$5,000 damage suit brought in behalf of a young girl of that city. It was alleged that the girl was permanently injured when eleven of her teeth were extracted.

MIND AND BODY.—Instead of supposing that mind is something indefinite, elastic, inexhaustible, a sort of perpetual motion or magician's bottle, all expenditure and no supply, we now find that every single throb of pleasure, every smart of pain, every purpose, thought, argument, imagination, must have its fixed quota of oxygen, carbon and other materials combined and transformed in certain physical organs. And as the possible transformation in each person's framework is limited in amount, the forces resulting cannot be directed to one purpose without being lost for other purposes.—ALEXANDER BAIN.

MERCURIAL STOMATITIS.—For tender, bleeding gums from ptyalism, or any other cause, associated with fetid breath, the following prescription will be useful:

B Liquoris formaldehydi3j
Thymolisx
Tincturæ benzoini composite.....	.3 ii
Alcoholis	qs. ad. f. 3 iii

M. Sig. Teaspoonful in wineglass of water as a mouth wash every two or three hours.—*Medical News.*

THE ENTHUSIASTIC RADICAL AIDS IN THE ONWARD MARCH OF PROGRESS.—I believe that there is some peculiar usefulness in the world for the man of radical ideas, for the man of a single idea, for the man who goes to extremes, for the man who is spoken of as a crank. The man accused of being a crank, you will remember, said that a crank was something that turned something! So that the extremist and the one-idea man has his place—at least as a means of attracting attention, of arousing inquiry, leading, in dentistry, to investigation as to whether we are doing that which is best for our patients. The practice of dentistry in the past has been influenced by the extremists, and as we find it to-day it is quite in accord with the progress in all other lines to which the human mind gives its attention. In the modifications of religious belief, in the better interpretation of the common laws, in the practice of medicine, in the practice of

surgery, the enthusiastic radical is the man that has had a very material part in the pushing on of the car of progress.—C. A. BRACKETT, D.D.S., *Dental Cosmos*.

PESSIMISM.—The greatest thief in the dental world to-day is pessimism. He has been pursued for years by intelligent and reasoning practitioners, captured, convicted, and even confined, but only long enough to devise some way of escape—for he is still at large among us. Some few weeks ago I met one on parole. After exchanging greetings, I said: "How do you like this weather?" "Not much; I'm feared it's goin' to rain." "Well, how's times with you?" "Sorter so-so, but they won't last." "Folks all well?" "Yes; but the measles is in the neighborhood."—A. J. FLANNIGAN, D.D.S., *Dental Cosmos*.

FUNCTION OF A STATE SOCIETY.—The principal function of every State Dental Association is the betterment of dental services rendered the people of the State. The dissemination of new thoughts, new ideas, and new methods is so meager in our State, because, out of a total of six hundred dentists, not many more than one hundred are actual members of our association. Too small a percentage is available for any united action on matters of importance to our profession and the public. Cooperation is the keynote to success, and the only way to obtain that is by increasing our membership.—MAX M. EBLE, D.D.S., *Dental Summary*.

BOYS AS AMATEUR DENTISTS.—A serious case of hazing among the boys of the public schools is reported from Rockland, Mich. Pulling the teeth of fellow pupils was the practice of the guilty youngsters concerned and it was accompanied by threats of the loss of tongues were the identity of the juvenile dentists disclosed. One boy, who had lost seven teeth, became so seriously affected as a result of the operation that he was forced by his father to explain how the injury had been done. Arrests were made, but the matter has been settled out of court and the hazing tactics have been abandoned.

ROBBERIES.—Burglars entered the offices of Drs. T. S. Smith, H. C. Reynolds and C. S. McCowen of Berkeley, Cal., Oct. 3, and relieved them of gold and platinum amounting to \$20, \$15 and \$25, respectively.—Dr. McDermand's office, Freeport, Ill., was robbed of instruments and gold scrap to the value of \$200, Oct. 24.—Dr. J. D. King, Paola, Kan., lost gold amounting to \$50, Oct. 14.—Sneak thieves entered the offices of Drs. O. H. McCandless and W. A. Moore, Kansas City, during the noon hour, Oct. 8, and took cash, jewelry and gold fillings.—About \$100 worth of gold leaf was taken from Dr. C. C. Sherwood's office, Ottawa, O., Oct. 8.—Dr. C. M. Gearhart's office, Greenville, O., was relieved of gold plate and fillings amounting to \$125, Oct. 11.—In Norristown, Pa., on Oct. 25, burglars secured \$100 worth of gold from Dr. J. W. Goddard and also entered the office of Dr. H. C. Nyce, but evidently were scared away, as they were endeavoring to force a drawer containing gold and cash. The lock of this drawer had almost been broken off and the marks of a jimmy

were plainly visible.—Dr. J. C. Schuller, El Paso, Tex., \$40 worth of gold.—Dr. C. A. McDermand, Bloomington, Ill., Oct. 26, instruments and gold scrap worth \$150.—Eastern Painless Dentists, Cincinnati, O., Oct. 21, false teeth and gold valued at \$100.—Tioga, Pa., police are searching for a youth of 18, who is robbing offices of dentists and physicians. While Dr. G. R. Ulrich was treating a patient the pockets of his overcoat, in waiting room, were rifled and pocketbook, etc., taken.

ACCIDENTS.—Dr. J. C. Hawver of Placerville, Cal., was badly injured by an explosion in a cave while preparing to take photographs, Oct. 8.—Dr. H. M. Russ, Portland, Ore., was probably fatally injured by the explosion of a compound with which to make artificial teeth, Oct. 2. One hand was blown from his arm and one of his legs pierced by flying portions of steel.—Dr. L. D. Woltzen, Clinton, Mo., was severely scalded by the explosion of a vulcanizer, Oct. 10.—Dr. Stockard, Cave City, Ark., came near losing his eyesight by the explosion of a vulcanizer, Nov. 5.—The explosion of a gas tank in the office of Dr. Monroe, Boston, Oct. 22, caused a \$50,000 fire.

DENTAL COLLEGES IN 1857.—In 1857 the Baltimore college had 20 graduates and 25 juniors. Ohio college had 5 graduates and 18 juniors. Pennsylvania college had 13 graduates and 20 juniors. Thus all of them together had about one hundred students, and the number of dentists in the United States was something more than 4,000; that would make about one college to every 1,333 dentists. Beginning with 1840, the requirements for graduation were one year at college and four years of practice; two years of four months; three years of five months; three years of six months and three years of nine months.—H. L. AMBLER, D.D.S., *Dental Summary*.

NEW PROCESS NUVO TEETH.—The most important feature of these teeth is the white backing, which is an opaque material and is incorporated with the tooth when it is baked. The makers claim that this backing has a crushing stress of eight hundred pounds, and that with a straight direct pull on the pins the tooth will stand a stress of seventy pounds, which is about twice the strength of ordinary teeth. The cost is about one-third as much as platinum pin teeth. A full denture is exhibited, with several of the teeth ground away, including one-half of the pins, showing the attachment of the pins and porcelain.—F. W. GETHRO, D.D.S., *Dental Review*.

ILLEGAL PRACTITIONERS.—A "Painless" dentist of Santa Ana, Cal., was arrested Sept. 30 for practicing without a license. On depositing \$100 bail he was given his liberty. Oct. 3 the case came to trial and he was given the minimum fine, \$50.—A "mechanical" dentist employed by a dentist in Toronto, Ont., was brought before a magistrate Oct. 4, charged with practicing dentistry without a license. The attorney for defendant declared his client had never performed any dental operations, but had extracted teeth in emergency cases, and any money he received was turned over to his employer. The magistrate reserved judgment.—A dentist of Everett, Wash., was arrested Oct. 21 on a charge of unlawfully practicing dentistry

without registering or procuring a license, as provided by law.—The case of a Japanese dentist of San Francisco, charged with practicing dentistry without a license, was called recently. On the Japanese failing to answer, the judge declared his bail of \$100 forfeited and issued a bench warrant for his appearance in court. Another Japanese charged with the same offense demanded a jury trial, and his case was continued.

FATALITIES.—A woman in Leavenworth, Kan., died Oct. 7, from fear of pain preceding the extraction of an abscessed tooth.—A Bath (N. Y.) woman died in a dentist's chair, Oct. 14. Chloroform had been administered, and it developed that previous to going to the dentist she had taken cocaine.—A man in Salt Lake City died Oct. 15 as the result of having a troublesome tooth extracted five weeks previously.—A woman died in a dentist's chair in Chattanooga, Tenn., Oct. 30, from the effects of chloroform and the shock following the extraction of eleven teeth. The dentist, who had been ill for some time, and performed the operation only at the urgent request of the woman, was completely overcome by the accident, and is critically ill.

CLINIC FOSTERS TUMOR: POISONING FROM COCAIN MAY HASTEN DENTIST'S DEATH.—Dr. J. L. Whinery, a prominent dentist of Marshalltown, Ia., who at the National Dental Association convention held at Minneapolis last summer submitted to a clinic removal of a molar, resulting in poisoning from cocaine, is now at St. Mary's hospital, Rochester, Minn., after having undergone an operation for tumor on the brain. Dr. Whinery has been failing rapidly since his Minneapolis experience, the cocaine seeming to have aggravated some latent trouble which had developed a brain tumor. The operation was performed to-day, lasting three hours, and the head was drained, but no tumor was removed. The attending doctors give very little hope for his recovery and the outlook is very unfavorable.

EXAMINING BOARD AFFAIRS.—At the October meeting of the Michigan Board 21 out of 32 candidates were successful in passing the examination.—During the fall meeting of the Missouri Board, held at Jefferson City, the examinations were held part of the time at the penitentiary, where convicts needing attention to their teeth were afforded the opportunity to have work performed for nothing and under the eye of skillful dentists.—Dr. C. N. Lord of Santa Fe, N. M., has tendered his resignation as Secretary of the State Board, and Dr. M. J. Moran of Deming has been elected to succeed him.—Governor Crawford of South Dakota has appointed Ernest H. Wilson of Miller a member of the State Board to fill the vacancy caused by the resignation of C. W. Stutenroth of Watertown.—To a party of Seattle dentists representing the Northwest Dental Association, said to have been started in opposition to the organization of the old-line school of dental ethics, Governor Mead of Washington gave his promise that he would appoint one of their number a member of the State Dental Board to fill a vacancy now existing if they would agree

on a Pierce county man. The Seattleites agreed to the proposition and will choose a Tacoma dentist for membership on the board. The Seattle dentists, a dozen strong, went to the capital to advocate the candidacy of Dr. Lee Baker, a Seattle dentist, for position on the board. Representatives of the new organization claim to have reached an agreement with the older organization whereby the two organizations will work in harmony on the board, both sides having representatives.

FREAK PRESCRIPTIONS.—A New York druggist is preparing a unique scrapbook. It contains the written orders of some customers of foreign birth, and these orders are both curious and amusing. Here are some that were copied from the original:

"I have an acute pain in my child's diagram; Please give my son something to release it."

"Dear Dochter, ples gif bearer five sense worth of Aundie Toxyn for gargle baby's throat and obleage."

"My little baby has eat up its father's parish plaster. Send an anecdote quick as possible by the enclosed girl."

"This child is my little girl. I send you five cents to buy two sitless powders for a grown-up adult who is sick."—*Home Herald*.

MARRIAGES.—A. C. Holliday, a dentist of Long Beach, Cal., was married to Mrs. Dora Cutler of Ionia, Mich., early in October.—Robert A. Comegys, a dentist of Smyrna, Del., was married to Miss Madalina E. Smith of Philadelphia, Oct. 5.—Oscar R. Holmin, a dentist of Rockford, Ill., was married to Miss Mabel Johnson, also of Rockford, Oct. 22.—R. A. Adkins, a dentist of Elgin, Ill., was married to Miss Winnefred E. Boyce of Chicago, Oct. 21.—W. R. Steffens, a dentist of Freeburg, Ill., was married to Miss Lillian Fox of the same place, Oct. 22.—Ernest C. Vitou, a dentist of Goldsboro, N. C., was married to Miss Annie K. Harper of Wilmington, Oct. 17.—Charles A. Weston, a dentist of Springfield, Mass., was married to Miss Helen M. Gerrish of Lowell, Oct. 9.—Edward A. O'Donnell, a dentist of Worcester, Mass., was married to Miss Alice A. Flood, also of Worcester, Oct. 17.—James Coleman, a dentist of Clinton, Miss., was married to Miss Johnnyc M. Sturdivant of Monroe, N. C., Oct. 29.—James W. Bockoven, a dentist of Philadelphia, was married to Miss Katherine Swift of Cuba, N. Y., Oct. 10.—R. W. Baldwin, a dentist of Viroqua, Wis., was married to Miss Jessie Hutchinson of Montezuma, Ia., Oct. 17.—C. R. Young, a dentist of Huntington, O., was married to Miss Bertha O'Dell of the same place, Oct. 31.—H. S. Rogers, a dentist of Sandusky, O., was married to Miss Edna Gander of Norwalk, Oct. 17.—G. J. Bacher, a dentist of Roseburg, Ore., was married to Miss Julia F. Wilson of Roseburg, Oct. 23.—George E. Morrow, a dentist of Owings Mills, Md., was married to Mrs. Jennie Du Bois of Baltimore, Oct. 24.—A. B. Dixon, a dentist of Glasgow, Ky., was married to Miss Caddie Lewis, also of Glasgow, Nov. 6.